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THIS WEEK

AMIGA

CDTV delayed yet again
But... in an exclusive
interview CBM's UK boss says
it will still be ahead of Philips'
rival CD-I system

PC

Intel's 586 chip set for '92

MACINTOSH

Coming soon: the hand-held!

ATARI

Fancy a £400 transputer card
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CONSOLES

Sega's new 32-bit Gigadrive

SUPER ST **EXCLUSIVE** SCORCHER!

Forget the Amiga 1500
– Atari's new **16MHz**
Mega STE is all set to
take on the Mac!

Full details of this £799
double speed dynamo
on pages 6 & 7



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AND...EVEN MORE

SHOPPING EXPRESS
THE VALUE PRICES GUIDE TO YOUR BARGAINS AND MORE

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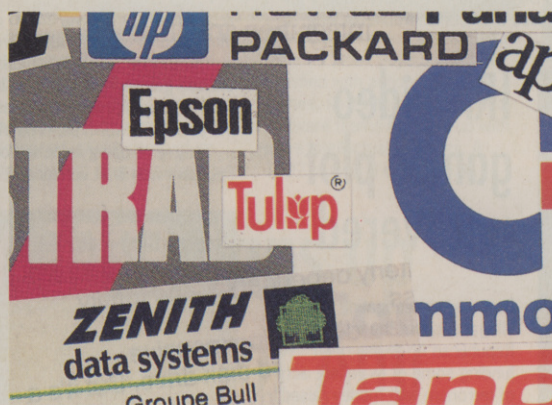
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THE NAME GAME BUYING THE BEST

Is it worth paying more for a brand name PC? Where to get advice on the perfect purchase

UNIX

EXPRESS looks at two new
sub-£100 packages for the PC,
ST, Amiga & Mac



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frontend

edited by Colin Campbell

Why EC laws are bad for him . . .



. . . and for you

Leading industry figures, including Amstrad boss Alan Sugar, have reacted angrily to the announcement of crazy new anti-piracy laws by the European Parliament.

Sugar and a number of influential industry types are warning that new laws which have been set down to combat piracy could seriously harm computer manufacturers and users.

The legislation makes it illegal for someone to take a piece of software apart, and then write their own version using the best parts of the original. This widely used process is called Reverse Engineering.

Sugar and his pals point out that these laws make it impossible for software writers to make business software compatible with market-leading products such as Lotus 1-2-3 and WordStar, thus leaving the market exclusively to corporations

which have already established themselves.

Currently, the only way for a new software publisher to break through is to write a program improving on the status quo, but compatible with existing standards. Then we get ever improving software plus a standard to work from.

Sugar warned last week: "The European Community is on the verge of putting its computer users at the mercy of IBM, DEC and a couple of other multi-nationals." It's not a pleasant thought.

Apricot's managing director Peter Horne agrees, saying the rules would "stunt the growth of computing". Bull, Olivetti, Unisys and Fujitsu are among the group of companies opposing the restrictions.

But they have a scrap on their hands. IBM, Microsoft and Digital Equipment have happily given the new directives their considerable backing. ■

Hey big spender!



British Airways spends enough money on computers every year to pay for two new Boeing 747 aircraft.

This intriguing snippet of information comes from BA's chief executive Sir Colin Marshall, a man who could be one of computing's biggest spenders. Last week, while waxing lyrical at an Information Technology conference in London about the advantages of investing in computers, he revealed BA's total IT spend per annum.

It emerged that Sir Colin invests £150 million a year on computers - about three per cent of BA's total revenue.

That kind of money could buy a Spectrum +2 for every single resident of Liverpool. ■

IRA video games plot uncovered

Police are investigating allegations that the Irish Republican Army has been funding some of its recent acts of terrorism with money raised through an elaborate arcade machine fraud.

The IRA is believed to have been involved in a £2 million VAT fraud which apparently involved hundreds of video gaming machines scattered throughout Britain.

A terrorist connection emerged after a dawn swoop on arcade halls, pubs and clubs two weeks ago. ■

PCs facing up to the Space Ace



If there's one game guaranteed to make non-believers stop and stare, it's Space Ace.

The graphics on this interactive cartoon have left ST and Amiga owners stunned and, even if the gameplay is a touch limiting, it looks and sounds a dream.

Now Space Ace has been launched for the PC with 40 pretty screens to get through, complete with excellent sound effects. The game mission is to rescue a kidnapped girl by blasting fiends with a variety of noisy and nasty weapons. The publisher, Empire, is asking £44.95. ■



Brother's budget classics

A selection of cracking action games are to be re-released by Mastertronic at highly attractive budget prices.

The Bitmap Brothers' original Xenon will be among the big four cheapo games, which also include 'beat-up-the baddies' classic Double Dragon, mutant masher Gemini Wing and the highly acclaimed 'kill-em-all' Silkworm pictured above.

They're all being launched on major formats between now and February with 8-bit versions at £2.99 and 16-bit games at £7.99. ■

A FREE ARCHIMEDES (for

Acorn has launched a new scheme for computer buyers which offers prospective customers the chance of a 14-day home trial of The Learning Curve educational pack.

The free offer is being organised through 82 selected Acorn dealers around the country. Acorn is pinning its faith on buyers who, having "experienced the power" of the 32-bit RISC based Archie, will become completely hooked.

The BBC A3000 version of The Learning Curve as well as the full

Archimedes version are both featured in the deal. Unlike other 'try out' schemes, customers will receive the packs in their entirety (including monitor and software), so they can try out a broad spectrum of Archie programs.

The A3000 Learning Curve with monitor costs £1,085 (inc VAT).

Acorn's Bob Coates said: "This project is just part of our growing assault on the leisure and home user sectors of the market. The calibre of these machines allow them to speak for themselves." ■

VR IS HERE!



The world's first 'affordable' Virtual Reality system was launched at Computer Graphics '90 last week.

British designed, Virtuality costs £20,000 – about a tenth the price of similar systems in the US. It allows a user to enter a 360 degree, computer-generated dimension and move freely around. Users can see the new world through the Visette headset which contains two stereo television screens and quadraphonic sound.

Motion, achieved by normal body movements, is unobstructed and you can interact with objects in the Virtual world with a hand-held unit.

It all runs off an Expativity networked computer system, purposely designed for VR applications.

Virtuality will be aimed at professionals, such as architects or car designers, who want to get a feel for their products before they build them, as well as in sophisticated gaming environments.

It has been in development for the past five years at the laboratories of W Industries. Managing director Dr Jon Waldern commented: "Virtuality enables everyone to explore the full power of Virtual Reality, projecting them into alternative worlds. The system could become a form of interactive cinema with members of the public influencing the world created for their entertainment."

● Express will be trying Virtuality out over the next few weeks. Watch out for a full review soon. ■

Sega's 32-bit Giga-console

Games players are currently being wowed by the delicious graphical capabilities of Sega's 16-bit Megadrive. But now we hear a 32-bit console is already being developed.

Called the Sega Gigaconsole, it is based on arcade-machine technology. Giga means 1,000,000,000, which is 1,000 times more than mega, which gives an idea of its potential.

It's not hard to fit an arcade board into a console-sized box, but it is expensive. Insiders believe the Gigaconsole will be a



rich man's games machine; a retail tag of £500 is predicted with cartridges at £100.

Even so, the third generation Sega will offer maximum visuals and speed, plus a depth of gameplay not normally associated

with console games. Sega reckons 32-bit buyers won't be satisfied with action or sports games, so it has commissioned software teams to come up with, more intellectual offerings. A 1992 launch is expected. ■

(for 2 weeks)



Lotus snaps up Samna for Ami

Heavyweight business software publisher Lotus has bought word processing firm Samna.

It cost Lotus a whopping \$65 million, but now the firm will be able to add popular PC word processing packages Ami and Ami Professional to its stable.

Lotus is the market leader in spreadsheets and is also responsible for top-selling

organiser and integrated business software packages. But it has hitherto steered clear of the wp market.

"Our objective is to have the leading products in the major application categories and in the major computing environments," said Lotus boss Jim Manzi. "Ami Professional fits this strategy perfectly." ■

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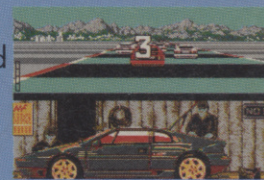
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• Marble slide – a little beast of a game.

This year, in whatever form you care to mention, the Amiga has taken off. It's been phenomenal. I'd even say that the Amiga has become a cult."

Steve Franklin is feeling exceptionally pleased with himself. All the signs are that more and more people will be joining the computer tribe this Christmas, and a fair share will be settling for nothing less than a gleaming new Amiga.

Bitter-rival Atari privately feels that the Amiga will take up a large helping of the Christmas pudding – but it still maintains that the ST will come away with the biggest portion. Even so, ST owners, heartily sick and tired of hearing about Commodore's pride and joy, are being forced to either listen up or plug their ears.

The ST is still a vital attraction, but this year's prospective computer buyers seem to regard the Amiga as the cool one to own. Brand names are more important than ever and Franklin reckons Commodore is the most important name of them all.

Before he really gets going though, an apology – Franklin talks in total sales speak. Whether he knows any other language is improbable – Amigas "fly out", markets reach "critical mass" and consumers have "brand loyalty".

His art is to make money and keep everyone happy. It's his firm belief that, in someone else's hands, the Amiga might not have made it.

"I remember when I first joined about three and a half years ago, I took 40 or 50 software developers to Chelsea to watch the football and have something to eat. I told them that I would make the Amiga the best home computer. Some agreed, but there were many who said that Atari had too much of a lead on us with the ST which had been launched a year before. Some said we didn't have a chance."

The battle between ST and Amiga is far from over. It is only recently that the Amiga has drawn level and only now that it is edging ahead.

When Franklin took his industry pals to Stamford Bridge there were about 15,000 Amiga owners in this country. That figure is now reaching up to the 500,000 mark.

"I can't get enough Amigas into the country. If we take one in, we sell it. It's as simple as that. Like I say, it's become a cult product and that's especially the case with home users."

"I know that a lot of people are initially attracted by the games, but more people are realising that they can do much more with the machine than they originally intended."

Of this there is little doubt, but the quality of games currently being launched on

I PUT COMM BACK ON THE

Commodore's UK boss Steve Franklin reckons this is his year. He's made the Amiga Britain's most wanted home computer and, via a games console, he's resurrected the C64. Colin Campbell heard what the man has to say...

the Amiga is surprising even Commodore, and there's more to come. If Commodore does the smart thing and launches the Amiga with 1Mb of RAM next year the software houses will be at liberty to invest in grander designs for computer entertainment.

Predictions of a frightened exodus to the console zone have proved to be entirely unfounded. Software publishers are spending a great deal of money writing for the Amiga and ST. In turn gamers are spending hard earned cash on anything from revamped classics and simple shoot-em-ups to interplanetary exploration games on the scale of *Corporation* and *Captive*.

keen to get this across, but given Commodore's appalling "faulty returns" rate in the early 1980s, it's a matter of considerable importance to his company.

"I've always maintained that you have to give people good value and a good after sales service. It's just not good enough for someone to buy a product, and then have to worry about whether or not it's going to work."

"Of course there will be hiccups. If 300,000 people buy Amigas this year, and we've managed to keep down to a one per cent faulty rate, that's still 30,000 kids who'll be opening up machines that don't work."

Franklin claims that any such problems

being more expensive. Franklin's theory is that people want to believe they have the best, this being especially true of youngsters.

"I've got four kids. If I take my eldest, who's 13, to a sports shop, he has to have Nike or Reebok trainers. If it's jeans, he has to have Levis. Kids are into brand names and I believe the Amiga is the favourite computer brand name."

The 'my computer is better than yours' argument is not restricted to *Express* readers. Unfortunately, Franklin and his Atari adversary Bob Gleadow prefer to steer clear of public slanging matches. Nevertheless, Commodore's boss can't resist making a point. "I won't knock a computer but..."

But?

"But I personally believe that the Amiga is better."

Franklin won't spell it out, but it is now official Commodore policy to pitch the Amiga as being £100 more expensive than the ST and therefore "better". This thinking will infuriate Atari-ites; Amiga owners who've already laid out the extra ton, will probably admit that it's not a bad perspective.

Whether Commodore could actually afford to drop the price is not known for sure. But one of Franklin's favourite anecdotes (allegedly saved for close business friends) is said to be the one where he celebrated in style the night Atari dropped the price of the ST. He won't say if this is true.

And the Amiga's future? "I think we have at least another two years with the Amiga as it stands, of course we'll be putting together new bundles, but other than that I can't say what changes we'll make." What he won't say is whether or not the Amiga will come with that 1Mb of

What about that Amiga portable?

“People have talked about this. Now, I'm not bullshitting here, it has been discussed, but as far as I know there hasn't been any firm decision. Nobody in America has said to me that we're going to launch a portable, even though there may be one in development.”

"We invested £5 million on the Amiga this year and we've worked hard on making it a success. Most of the good work has been done with software publishers. We're not so arrogant that we think we can get by without them." Franklin adds, with a tinge of pride: "They've even asked me to join ELSPA (Entertainment Leisure Software Publishers Association)."

Franklin is more than keen to get across the notion of a company that cares for its users. All manufacturers are

will be dealt with swiftly in the post-Christmas lull. "I've spent a lot of money sorting this out. I mean a lot of money." He won't say how much, but the pained expression on his face suggests that he means a lot of money.

He's also adamant that the price of the Amiga won't be dipping by £100 to the ST base price of £299. This is bad news for buyers, but naturally, Commodore thinks it's for the best.

The plan is to beat the ST on price – by

C64 – a UK initiative

"A console is a console and there's not much more you can do with it than play games. I personally questioned whether Commodore wanted to be a player in that market. We always try to give our computers an educational quality so that people can buy it in the knowledge that, although it might be primarily a games machine, there are always other potential uses."

Franklin managed to step down from this moral high ground in order to exploit the growing console market by launching the C64 Games machine. Perhaps surprisingly, it was a UK initiative – Franklin asked his masters in the United States for a games machine and they obliged.

Was this just because he had spotted a great way of squeezing more money out of an eight-year old machine? Up to a point...

"There are children out there who can not afford the £159 for a C64. We know that they only want the machine to play games on, and we think £99 for the console is very reasonable"

Perhaps Franklin is turning into Father Christmas?

"It's a question of loyalty. We find that users are very loyal to Commodore up until they go out into the working environment, then we don't know."

Franklin is also attempting to put a block on Sega and Nintendo's aspirations. It does Commodore no harm to fracture the console sector as much as possible.

As for the C64 itself, there's not much to say. Except that it'll still be going next year, and probably the year after and, just maybe, the year after that...

Christmas Show

Don't forget the forthcoming Commodore Christmas Show, where all things Amiga and C64 will be on display.

It's being held at the Novotel in Hammersmith, London, from 16 to 18 November. Tickets are £4 although family discounts will be on offer. For more information call Commodore on 0628 770088.

COMMODORE THE MAP

RAM next year. It's a logical move, and not overly expensive. The only question is whether or not the 1Mb machine will cost more.

With expansion boards costing about £40 from third party publishers (and given that the addition would cost Commodore relatively little) one sincerely hopes not.

Although the A500 is making up the bulk of Commodore's business there's also the newly launched 1500 Personal Home Computer, the Amiga 2000 (which many people believe needs a re-haul) and the exciting top-end 3000 and Unix 3500.

The 1500 costs just under £1,000 and is basically an A500 with 1Mb inside a 2000 box along with monitor, helpful aids such as a book and video, and lots of sexy games and useful business software.

"I think it's very exciting. People are getting a good machine with upmarket games, good business software and DPaint 3 which is very much a current product. The bundle enables users, per-

On success

"We don't want to get arrogant. We know we can't walk on water. I know we can lose it all just as quickly as we made it. In fact, we can lose it even faster."

haps for the first time, to have a serious system which can be used by all the family. There are also XT and AT cards which give users the security of MS/DOS. It's a total family computer and initial orders running into the thousands prove that it's what people want."

There has been criticism that this splendid bundle puts the more expensive Amiga 2000 in the shade. Franklin argues, a little unconvincingly, that the A2000 offers greater expandability for top-end professional users. But those in the know believe the 2000 will be changed, although no-one, possibly not even Commodore, can work out quite how it will be altered.

And finally, there's the A300 workstation. It's a little early to say how successful Commodore will be up among the Sun's and IBM's of this world. But Commodore says it is already planning ever more powerful Amigas for the professional markets. Things are looking up. ■

On the Japanese

"I've spent three and a half years putting Commodore back on the map. I won't let Sega or Nintendo take that away."

CDTV times

"We're going to tell the people why they need CDTV. We have to give them a reason for wanting it."

Franklin has his sights not on you, the computer buying public, but on everyone – the TV, satellite dish, Nicam stereo, CD Walkman hungry British public.

It's reckoned that we'll buy anything electrical – all we need is to be persuaded that it will improve our lives.

What about an interactive CD-based entertainment system? It's going to take some powers of persuasion.

"I think everyone wants it to be a success. People need something new. Television is in the doldrums, camcorders are yesterday's thing..."

"I've seen some of the games software for the CDTV and it really adds a new dimension to games playing. It's out of this world."

"The point with CDTV is that it's truly interactive, and not just passive like TV. When it's launched (next April) there'll be about 50 new games ready, not just ported

games. And with the serious software that'll make about 150 titles"

But CDTV is in a dangerous position. The longer Commodore delays its launch the more chance it gives Philips with the rival CD-I standard. Commodore was to begin its public beta-testing scheme this week, but that's been put back to the New Year (see news).

"I know there are two camps. And I know I can't just brush away CD-I; that would be stupid. But we will have ours out before Philips and that will give us a better opportunity."

"Unlike CD-I, we have a lot of software ready. Because CDTV is based on the Amiga we can produce software at twice the speed of Philips and at a fraction of the cost."

"It takes a developer just three or four months on an Amiga 3000 to churn out a game. It's easy and inexpensive. I know Philips can spend a lot of money, but there's little they can do if Commodore establishes itself as the standard."



ILLUSTRATION BY MARTIN PARFITT

• Franklin:
"I would make the Amiga the best computer in the world."

Fast fax

A British company is aiming to revolutionise business communication with a new computer-based high-speed data transmission device.

The device has been designed by Alfa Systems as a stand alone desktop unit for transmitting and receiving machine-readable data at very high speeds along normal telephone lines.

It is comparable to a fax machine except that the information arrives in a form that can be decoded by the machine and then placed on to a disk. The information can then be read using a personal computer or printed out on an office printer.

It is claimed that Datafax is 20 times faster than a normal fax, sending 40 pages of A4 text and graphics in just over one minute. This makes it much cheaper and it will work with any MS-DOS or high density Macintosh disks.

Diskfax comes in two models. The Floppy Diskfax version has 5.25-inch and 3.5-inch drives and costs £995. Retailing for £1,495, the Hard Diskfax has an additional internal hard disk.

Both are available now and are distributed in this country through P & P Distribution which can be contacted on 071-434 2744. ■

KO for troubled disk magazines

16-bit disk-based magazines **Rampage** and **Stampede** have been closed down following the liquidation of publishing company Jengrove.

A meeting of creditors was held in Leeds last Friday to appoint a liquidator for the year-old company.

The two magazines – **Stampede** for the ST and **Rampage** for the Amiga – were dedicated to free software held on inserted disks.

The problems which dragged Jengrove under are believed to stem from over optimistic production of disks. Apparently the circulation estimates for the magazines supplied by the distributors IPC were inaccurate, leading Jengrove to think they were selling better than they actually were.

The official figures of 17,000 for **Stampede** and 35,000 for **Rampage** are now known to be inordinately high.

Contributors had sensed there were problems for some time. Freelance writer Dave Burns felt that, "this has not



• Rampage – big problems

come as a surprise to those of us who were writing for them, as payment was very erratic, if at all. Luckily I stand to lose less than £500, but colleagues are in danger of losing much more."

Boss Pat Deeley reckons to lose £60,000. But he remains optimistic: "The magazines themselves were going from strength to strength, so I would hope that they can be sold." ■

Twice the speed of a Mac or Amiga ATARI'S ST

Atari has launched a super-fast version of its Mega ST, a machine likely to worry major competitors Apple and Commodore.

The Mega STE runs at twice the speed of comparable versions of the Amiga and Macintosh, but is cheaper than both computers. Atari hopes its new ST will appeal to business users looking for high-performance without high-costs.

Like most STs it runs on a Motorola 68000 chip, but the Mega boasts a clock speed of 16Mhz – twice that of the new low-cost Apple Macs and the mid-range Amiga 1500.

It's a twin disk drive machine

encased in the stylish new TT box. The system comes with 2Mb of RAM, expandable to 4Mb, and includes a 16K memory cache.

The Mega STE was shown for the first time at this week's Comdex show in Las Vegas, and comes with a retail tag of \$1,800 including mono monitor. A UK launch has been pencilled in for the spring and Atari will probably price the machine at £799 without monitor. However, buyers will be offered a range of options depending on their requirements.

A specialist desktop publishing (DTP) pack has been launched including the Mega STE

DTP battle ST versus Mac

Macintosh Classic

8 MHz, Single disk drive, 40Mb hard disk, Apple Personal SC laser printer
Price £2,300

Mega STE

16 MHz, Double disk drive, 50Mb hard disk, Atari SLM605 laser printer
Price £1,500 (est)

Computer firms will ride 'economic storm'

Despite a recent series of disappointing quarterly results, not to mention the threat of a worsening economic depression, the computer company bosses need not worry where their next meal will be coming from just yet – according to a report by London consultants Ovum.

The report, compiled following interviews with major computer users in both Europe and the US, reckons that the computer industry looks set to be one of the few areas which can look forward to massive growth over the next decade.

Predicting an average growth of 11 per cent a year through the Nineties, the report goes on to say that by the year 2000 the industry's sales will be three times what they are today.

While the demand for computer hardware will continue to rise steadily, there should be a sharp increase in the need for business software, services and data communication.

As the sales people are quick to point out, in times of financial difficulties a computer can be an effective cost cutting measure. Then, when a company is doing well, the same machine can become an invaluable help in capitalising on that success.

So, as more and more businesses do install computers, those who resist could find themselves increasingly out in the cold.

The result should be continued buoyant sales for IT products until such time as the vast majority of companies do become computerised in some form or another. ■

Next generation of chips from Intel set for launch in 1992

Intel predicts that it will have the next generation of micro-processors, the 80586, ready for a 1992 launch. The company has also reaffirmed its commitment to making the 486-based microprocessor – the PC market standard.

The plans were announced at an analysts' meeting in California where details were also released about the proposed 50MHz version of its 486 microprocessor. Intel has further stated its intention to lower the price of its 486-based PCs by a staggering £2,000 to £2,995.

Intel's chief executive officer, Andrew Grove, said the company would have to move quickly in developing its microprocessor technology because, "in the long term there is always competition in terms of architecture."

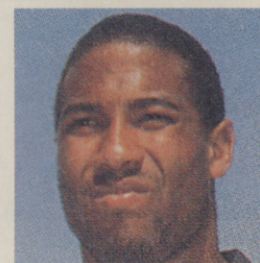
He added that he hoped, "demand for the 486 chip would outstrip supply as is the case with the 386." Analysts are apparently surprised by the scope of Intel's intentions but support the company's belief that the 486 chip will eventually replace the currently-favoured 386. ■

Barnes stormer

Footballer and some-time pop star John Barnes has just signed a new contract – with games publisher Krisalis.

A 'Barnes' game should be appearing late next year, with the man himself helping out with some of the low level aspects of game-play design.

Krisalis boss Tony Kavanagh said: "This is one of our main products for next year. Even



Barnes: on the wing?

though he has a very busy schedule John Barnes has taken time out to assist in the story boarding of the game, and we would like to organise some sort of competition for the release." ■

Gonzo's head-to-head hockey link

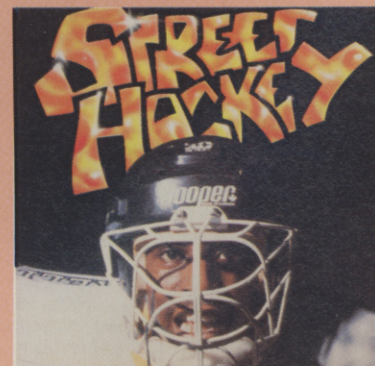
Gonzo Games is hoping to bring ST and Amiga owners together with its new game Street Hockey.

Gamers latching on to Street Hockey will now be able to link their machines together for a head-to-head battle – even if they happen to own different micros. The connection will be made through the RS232 port.

Street Hockey follows the same format as Gonzo's previous hit, the surfing game Wipe Out, in that it follows players from a behind the back perspective.

The game has been sponsored by the national Street Hockey Association and should be out any time soon. ■

• Street Hockey: some of the rough stuff



or Amiga – yet costing less than either

SUPERFAST ST

with 50Mb hard drive and the new Atari SLM605 laser printer. Prices start at \$2,800 and a similar package will be offered to UK buyers. The firm points out that the ST is supported well by quality DTP software packages such as *Pagestream*, *Calamus*, *Deskset II* and *Fleet Street Publisher*. The new machine also comes with the STE's graphics accelerator chip (blitter) and offers a palette of 4,096 colours.

Atari's boss Sam Tramiel announced his new addition to the ST series in characteristically confident style: "We designed the Mega STE for the serious business professional. This machine fills the gap left by other small system producers who have all but abandoned the small business professional. The performance of the Mega STE makes it the ideal solution for DTP and graphics, and the price makes it the choice for those concerned with bottom line costs."

Atari (UK) said the launch was "in response to Apple's new pic-



• Atari's new Mega STE: High power, high speed, low cost

ing policy" and predicted that there would be a big market here for "high-volume low-cost DTP". The new STE has a new sound chip, three programmable sound channels and digital stereo sound.

Here, speculation is growing that Atari is not only hoping to steal some of the DTP market

back from Apple, but also to tackle Commodore in the emerging 'family computer' market.

CBM's Amiga 1500 pack – a twin floppy Amiga with 1Mb RAM, colour monitor and free software – goes on sale this week. A similar bundle using the faster Mega STE would be a logical move for Atari.

ST transputer card speculation grows

Rumours abound that Atari is planning to transform the ST into a 'super transputer' with a miracle add-on that should cost a few hundred pounds.

A report in this month's ST Format magazine reckons that the board could be ready by next September, priced at between £300 and £400. Such a gadget would allow the ST to operate at astounding speeds of up to 20 MIPs (millions of instructions per second) compared to a current speed of less than 1 MIP.

If true, an enhanced ST – or

STT as the report claims it has been nick-named – would have the capabilities of a powerful high-end business computer at a mere fraction of the cost, making it attractive as a small business computer as well as to gamers after better graphics and sound quality.

Atari has dismissed reports that such plans exist, though a few dealers think there could be something on the horizon. So far, though, no details have come to light of any software being prepared for the STT. ■

Sweet IBMusic

Version five of *Songwright*, the music processing system for the IBM PC, is now available in the UK.

The program, developed by Songwright Software in the US, allows users to record and compose music, display and edit it in standard music notation and then play it back (via a MIDI interface) on a MIDI instrument.

The latest version has a number of new features. These include a complete range of notes down to demi-semi-quavers, support for a laser printer and an EGA screen and a facility called Full Screen Symbol Editor which enables users to create their own notation symbols.

Songwright 5 retails for £125 and is distributed in the UK through PC Services which can be contacted on 081 658 7251. ■

FAST talks to dealers

Fifty UK dealers are to attend a conference with the Federation Against Software Theft (FAST) in a further attempt to combat software piracy.

It is hoped that the dealers will be able to pass on any findings to end users. FAST points out that dealers have more contact with computer users than anyone else in the industry.

The workshop will take place in Maidenhead and Manchester on 22 and 26 November. Dealers will be required to 'qualify' for FAST approval. ■

How green is my computer?

Computer manufacturers are constantly under attack from Green organisations, mainly because of the CFC based substances used in the manufacture of printed circuit boards.

Now NEC has a developed CFC free spray to clean circuit boards of residual flux – the material which sticks the components to the board. Last year the company used 260 tonnes of CFCs for removing flux.

The new system, called Microcot HY-10, covers the flux with a fine CFC-free mist squirted from a spray gun. Residual powder is then hoovered up with a special suction device.

An added bonus is the 20 per cent cut in the amount of flux left behind with this new method. The equipment is available to non-NEC companies from next month. ■

MT's printer 'less than A4'

Mannesmann Tally claims to have launched the world's first truly portable page printer.

Weighing 3.8kg and taking up less horizontal space than a sheet of A4 paper, the MT735 is capable of printing 150 pages before needing to be recharged.

In common with the company's other printers, the portable prints six pages a minute at a resolution of 300 by 300 dots per inch. 36 fonts are provided as standard while the

1Mb memory allows for further down-loaded fonts and form overlays.

It is primarily aimed at mobile business users, such as salesmen.

The company has also announced a reduction of prices across its whole six pages per minute range of printers. The company claims this makes its MT906PS laser printer, which has been reduced by an impressive £500 to £1899, the cheapest on the market.



MT's high-tech portable effort

Packard Bell 386 for under £1,000

Continuing the downward curve of 386sx prices, the Packard Bell range of Force 386sx PCs now starts at under £1,000.

A price restructuring on the range means that a 40Mb 386sx with mono VGA now costs just £975.

At the other end of the range, a 200Mb machine with colour

VGA now retails at £1,695.

The company has also announced the UK launch of its high performance 386-25MHz and 386-33MHz desktop and mini tower systems. Prices range from £1,695 for a 386/25 40Mb machine to £3,295 for a 386/33 320 Mb machine and all are supplied with 14-inch colour VGA monitors.

NIBBLES

● The latest version of Borland's Turbo Pascal compiler will have its official launch at the Wembley Conference Centre on Thursday 8 November.

● Leading business computer retail chain Computerland is sponsoring a special all-star luncheon at the Savoy Hotel on 16 November which will see the launch of the Airborne Initiative, an appeal marking 50 years of the Airborne forces. The appeal aims to raise £4 million to support past and present members of the Airborne forces.

● Swedish company Standard Radio and Telefon break into the UK market this month with a range of Hayes-compatible BAPT-approved V.22bis PC modems.

● A new pocket pager from Cognito will offer error free data as well as two way communication using computer technology.

The paging system, which is due to be in service next year, uses packet radio technology. This takes the digital data, compresses it into 'packets' and fires these packets in short bursts. Using this system allows more data to be carried on the same frequency.

A low powered pager will be able to transmit as well as receive. This will allow the business person on the move to confirm receipt of instructions and to send messages back to base without an expensive cell phone.

● Genoa Systems claim its 6000 Series Super VGA graphics adaptors provide a virtually flicker free display when used with multi-frequency monitors, thus reducing eye strain.

Available in versions for both the AT/EISA and MCA bus standards, the cards range in price from £259 to £449. Telephone 0923 33737 for further details. □

Lightweight handheld and A4 laptops developed

PORTABLE 'Z88' MACINTOSH DUE

Apple is developing a range of lightweight Macintosh portable machines, both handheld and A4 laptop, due for launch next year.

One is understood to be a Z88 type machine, which would serve as a companion to Apple users on the move.

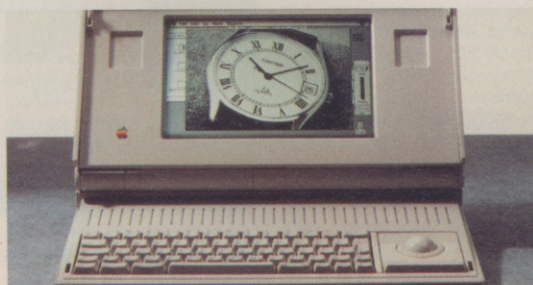
The decision to produce such a machine was sparked off by the encouraging success of the Z88-to-Macintosh link that was launched by UK manufacturer Cambridge Computer last year.

The A4 size Z88 is a popular machine among high-level Apple management, who use it for

note-taking during meetings, before dumping the information onto their desktop machines. It was during one such meeting that a decision was taken to launch an A4 Mac.

Another machine under development is a Mac-compatible handheld machine, similar in size to the Atari Portfolio. Apple would like to pitch this as a rather more sophisticated database and diary machine than those currently being sold, in the sub-£200 price range.

There is also talk of a cut-down version of the original Macintosh Portable launched last



• Smaller Mac portable next year

year, which retails at £2,800. Apple hopes to produce a lighter and cheaper machine. Specula-

tion is growing that it is being developed with Sony, but neither company will comment. ■

Smith Corona's new word

Smith Corona has launched a low-cost portable word processing machine called the PWP 1000.

Equipped with a switch which will convert it from a menu driven word processor back to an ordinary electronic typewriter, the PWP is designed to appeal to complete computer novices and on-the-move scribblers.

It has 32k internal memory, while external memory is supplied by a specially designed 32k datastore card. Both lightweight and portable, the PWP 1000 retails at £299.

Also released is a low cost office system, the PWP220. This comprises a 12-inch CRT monitor, a 50,000 character hard disk memory, a high density text processing printer and a detachable keyboard. Altogether the system costs £649. ■



• PWP 1000: simple word processing from under £300

Troops on-line

American computer owners have the chance to send mail to the US Armed forces serving in the Gulf.

The Letters from Home Service enables anyone with a modem to dial a local telephone number through most of the US and the developed world by simply entering "Letters." However, the expense of dialling the US company will limit the use by UK on-liners.

Anyone wishing to get involved can contact Genie Client Services on 010 1 800 638 9636. ■

Trade-in on Amigas

A special Christmas scheme by a Lincolnshire company is giving customers the chance to trade in their old Amigas for a spanking new Amiga – and to help charity at the same time.

MCS in Skegness is accepting customers' old Amigas in part exchange for the relatively expensive Amiga 3000 which starts retailing at £2,999. The traded-in machines are to be collected and sent to the BBC's Children In Need Appeal.

The trade-in value of each machine will vary according to its condition and version. A typical value for a boxed Amiga Kickstart 1.3 would be £329, and £15 less unboxed. MCS will pay for the collection of cus-



• Old Amigas - value for money for charity

tomers' machines from anywhere in the UK.

"I thought it would be nice to donate these machines to a worthwhile charity where they could be auctioned off or even used by the charity," says MCS boss Trevor Monohan.

For further details and evaluations, phone 0754 610217. ■

Going way Nova the top

PC gamers who can't decide between action and adventure should try Electronic Arts' new title *Hard Nova*.

It casts the player as Nova, a female mercenary who has to perform various dirty jobs for sometimes ungrateful employees – and recruit a crew at the same time.

The player talks to dozens of characters, which requires a lot of lying and cheating. There are three combat systems: indoor fights with blasters, hugging the 3-D contours of rocky planets and dogfights in hoverships. *Hard Nova* is to be released next month and will cost £29.99. ■

• *Hard Nova: SF action in a distant galaxy... where else?*



Zenith unveils sporty 286



• Zenith 286: light fantastic

Zenith will launch a 286 version of its 'ultra-thin' SlimSport laptop this week.

Designed to be a fully functional desktop portable, the SlimSport 286 relies on advanced VLSI (very large scale integration) chip technology to increase its speed and power while reducing the overall weight and size.

It features a 286 processor running at 16MHz, 1Mb RAM and a 20 Mb 2.5 inch hard disk drive. The screen uses thin liq-

uid crystal technology which includes a black-on-white LCD panel and fluorescent backlight for greater clarity. The machine is also fully VGA compatible. It comes with MS-DOS and a real-time clock/calendar as part of the package.

Zenith reckons that the laptop, weighing in at just 4.2 kg and with a price tag of £2,635, offers "more computing power and features than other laptops which weigh and cost substantially more." ■



Gremlins in your machine

Eight-bit gamers heed the following advice very carefully:

Never let light shine on your screen, never let your software get wet and never play this game after midnight while stuffing yourself stupid.

You'll need your wits about you to play the latest release from Elite for the Amstrad and Speccy, *Gremlins 2*.

Released 28 November, it costs £9.99 for a cassette; £14.99 for a disk. *Gremlins 2* is already available on the ST and Amiga. ■

The World at your fingertips

PostScript World is the latest clip art package in Magnum Software's Instant Art series for the Macintosh and PCs.

Comprising seven disks, the program offers the user maps of over 140 countries ready for import into files created by Pagemaker, Xpress, Ventura and other equivalent programs.

All the graphics are held on PostScript files means they can be edited, customised, combined, shaded, coloured or distorted using all Macintosh and PC compatible art programs such as *Illustrator* and *Freehand*.

PostScript World is available now either on its own for £95, or as part of a set comprising *PostScript Europe*, which offers even more detailed outline maps of all European countries, and *PostScript UK*, in which each county is can be edited separately, retailing at £265. ■

UK launch for Sony CD book

Sony's Compact Disk based electronic book is to be launched in the UK next year.

Books held on CDs can be loaded into the postcard sized Data Discman which has already been snapped up by 40,000 buyers in Japan. Plans are afoot to launch telephone directory CDs, dictionaries, phrase books as well as famous works of literature. Sony is negotiating with British book publishers with a view to an autumn launch.

The Discman can play audio CDs and will cost about £200 when launched in the UK. Discs will cost anything from £10 for a basic directory, to £80 for a text encyclopaedia.

A spokesman for Sony UK commented: "The response from publishers has been very positive and we are looking for a launch date about a year from now." He said that it was up to individual publishers to convert books to CD format. ■

Beta-testing postponed until New Year

CDTV DELAY FOR COMMODORE

To nobody's great surprise Commodore has once again postponed the launch of its interactive entertainment system CDTV.

A nationwide beta-testing program was to begin this week with prospective buyers being offered discounts on machines if they helped Commodore iron out any pre-launch problems. An official launch was to be in February.

However, the launch will not begin until April at the earliest, with the beta-testing program pencilled in for the new year.

Some have suggested that Commodore is hiding behind a smokescreen, and has failed to meet production and development deadlines. But UK boss Steve Franklin was adamant that this was merely a "sensible" change of plans.

"We have to do this properly for it to work. The idea was to run the beta-testing program through Dixons. But this is the busiest time of the year for them and us. It's better for everyone if we wait until the new year."

He said that some 200 software titles would be ready for the system by the time of its launch, with many already completed. These will range from Amiga ported games and entertainment programs to educational affairs and interactive libraries.

Originally, the CDTV was to be launched last September; when it failed to materialise the firm announced its curious beta-testing scheme.



• CDTV: the autumn launch that will take place in the spring.

CDTV competition winners

● Some weeks ago Express ran a competition to find two CDTV beta-testers. They were asked to tell us, briefly, why they felt they would be ideal to try out a new, computer based technology.

We received about 500 entries, most of which were well worth consideration. Many entrants were keen to stress the family aspects of their applications, and the broad interests

that would cover. In the event Commodore and Express decided on two applicants who have access to plenty of avid computer fans. The lucky two will be receiving their free machines in the new year (we hope). The winners are:

Mrs Sandra L Sharkey of Wigan, Lancashire: "I can offer six testers in one family. Myself

and my five sons aged from seven to 20. They have varying computer interests from serious software to educational and arcade fun."

Mr D Peacock of Colwyn Bay, Clwyd: "I should enjoy home testing on four children, including one mentally and physically handicapped. I am also employed re-introducing adults to learning new technology." ■

THE WEEK IN VIEW

Why does Amstrad Action's editor Rod Lawton think the computer industry is a bigoted boorish monster?...

A month ago we received, and printed, a letter from a schoolgirl called Catherine, who was fed up with the fact that computer magazines were so frequently sexist and didn't properly cater for female readers. She also went on to boast about her own computing achievements – having learnt BASIC at eight, and written an adventure at ten – and finally claimed that women were superior to men in any field they cared to enter! Harmless enough, I thought.

Less harmless was the response from our (predominantly) male readership which, suddenly, was transformed into a frothing, ranting lynch-mob. Women superior in any field they entered? Outrageous!

That was the general sentiment – much sanitised and condensed, I might add. The reasoning in these angry letters... well, there was no reasoning, really, just a sort of vicious gut-reaction to a threat as old as civilisation itself – the opposite sex!

One complainant in particular summed up the greatest fallacy (phallusy?) of all with regard to the world of computing. He claimed that men's superiority in

the field was actually proved by the fact that there were so few females in the industry. What a cretin!

The reason why there is such a paucity of women in the computer industry is precisely because the industry is such a sexist, bigoted and boorish monster. It is almost exclusively run by males for males, and there exists within it a kind of typically male locker-room camaraderie which cynically attempts to relegate females to the role of beguiling salespersons (selling to other males). This makes the industry tough for women to get into and unpleasant to be in when they do.

This is certainly true of the games industry and its customers, where to be a female is to be lusted after, patronised or ignored – but seldom treated as an equal.

Is this because most programmers started their computing careers hunched over a computer screen for hours on end in their bedrooms instead of getting out in the real world and meeting... girls?

Perhaps we'd better not explore that line of reasoning too far. Instead, how about this for a question: What computer games do most girls like to play? I don't know – do you? That in itself is very telling...



Hey! Get in touch with us! *Express* is always on the look out for news leads and tip-offs – and we'll pay you for passing them on too!

Also, if you have any burning ideas for features or surveys then drop us a line – remember, we cover every aspect of computing.

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COMING NEXT THURSDAY

Virtuality

Express takes a trip to the high frontiers of tomorrow's cyberspace arcade games

Hard Cash

What's the point in buying a hard disk?

Back in the USSR

Would you swap your Amiga for a limousine? – the Ruskies would!

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- Hot news
 - Front End
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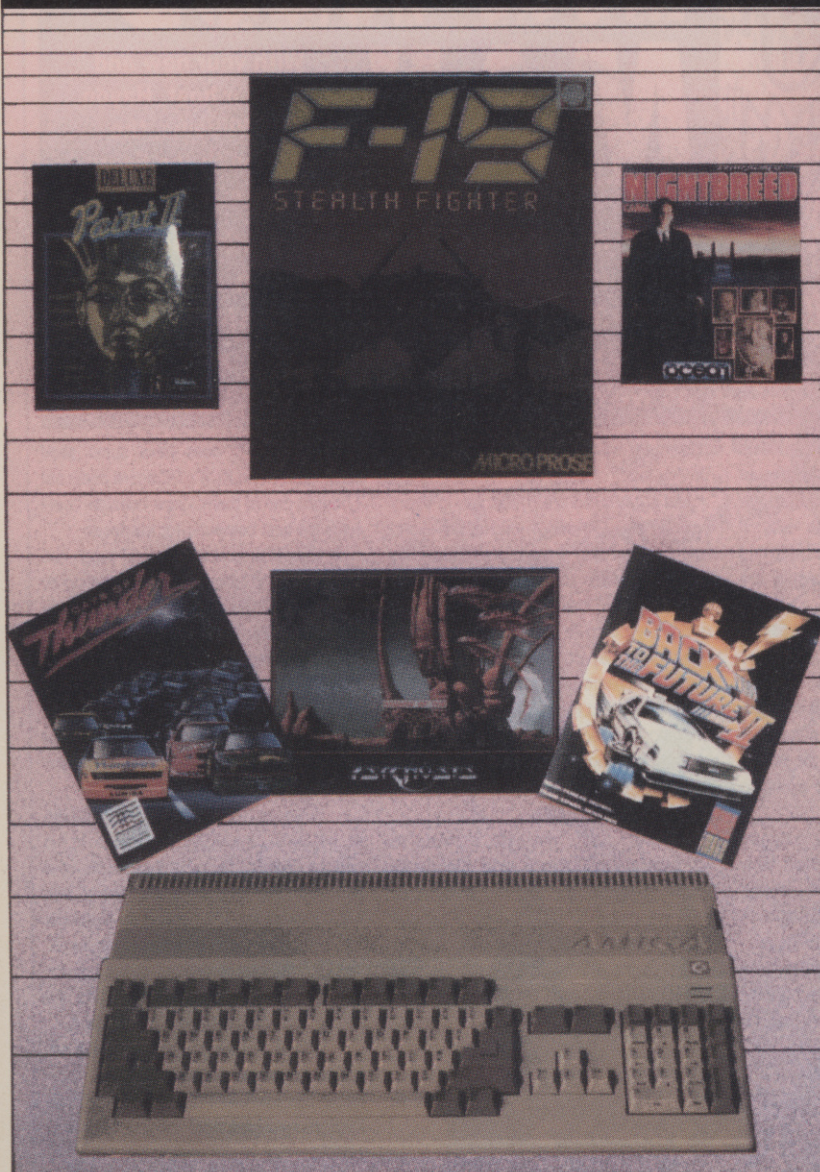
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AT YOUR NEWSAGENT ON THE 22nd

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- ☐ Speech Synthesis
- ☐ Multi-Tasking Operating System
- ☐ Kickstart 1.3 and Workbench 1.3
- ☐ Three Owners Manuals
- ☐ Extras 1.3 and Tutorial Disk
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■ Shopping List?

I am looking to purchase a computer for myself and my 8 year old daughter.

With a budget of around £1,000 I am looking for a computer that will be good for games and also good educational programs.

Having read your magazine for the last few weeks, the New Amiga 1500 PHC looks a good buy.

Could you tell me when this will be available in the shops, or should I be looking for a different model? I would be grateful for your advice.

Paul Baker

Well, the PHC (or Personal Home Computer for those who hate three-letter abbreviations) should be in the shops by the time you read this. For the money, it's not a bad deal and should suit your purposes, offering you a twin-drive 1Mb Amiga that can be upgraded in the future by adding boards. Skim through the ads in Shopping Express to see if you can shave some money off the asking price, and go for it!

HFW

■ Disgruntled...

I'd like to air my views on issues like software copyright, pirates, developers and publishers, sharks, ELSPA, computers and the meaning of life.

Having worked for the entertainment industry for a couple of years, and having been treated as trash at times, I am absolutely revolted by the hypocritical stench that those ELSPA anti-pirate ads exude. To hear accusations of theft and piracy coming from an industry that is itself teeming with sharks and ruthless connen, which employs so many questionable money-generating techniques itself, I find fascinating.

For example do I call FAST to denounce the software houses who bought ONE copy of 'Devpac'; or DPaint to duplicate it internally and give to their programming teams? Maybe I could use the £1000 reward money to pay the solicitor's fees to hunt down my royalties, royalties that those same companies still owe me for my months and months of hard intellectual labour?

It's a pity that I haven't got the kind of resources to place full page ads to warn bright, young kids of the dangers of joining the armies of underpaid and exploited games programmers. I could sure come up with a dozen different cartoons to frighten off aspiring Porsche-owning whizz-kids, depicting any of countless true horror stories, where programmers or artists are left without a penny because of the dishonest acts of a publisher.

I do not condone anything that approaches piracy on a commercial scale, but I think that trying to root out the kind of copying that goes on in most homes is pointless. Disks can be read by hardware without any kind of high-level copyright-recognizing protocol to protect the software from being copied. As long as



storage media manufacturers and software developers don't invest a minute amount of money in a new method of storing protected software (it would be so easy, if they really wanted), then all this copying will remain for as long as people are human.

The only reason why I think ELSPA & Co. are pushing their ads out is to raise their member companies' profit margins; after all, hasn't the price of 16-bit software been fairly constant for the past n years? If piracy was really undermining the industry, wouldn't prices have had to go up to compensate for the erosion?

To sum up, I think many software houses should first clean up their own acts thoroughly before they start pointing fingers at others who are committing acts of negligible illegality compared to theirs!

And now the bit about computers and the meaning of life. Having worked on virtual reality projects for the leisure industry, I am of the opinion that mankind is losing control over whatever control it ever had over its society, due to the explosive increases in reliance on (buggy) computers.

Virtual Reality for example is one of those emerging technologies that will turn the world upside down. I believe that VR will very quickly move out of its entertainment niche and affect the whole world in ways that we can not even start to dream about. Does anybody remember George Lucas' excellent film "THX 1138"? Maybe we all should.

This brings me to the sad conclusion, after nearly ten years of working with computers, that computers should be eliminated if Homo Sapiens is ever to discover the meaning of balanced life...

'A programmer'

What a depressing point of view! Without doubt, there was a time when the games publishing industry had more than its fair share of 'wide-boys', as my old Mum used to called them. But all that ended about five years ago, which is why you rarely see stories in the newspaper about Porsche-owning whizz-kid pro-

EXPRESS MAIL

With your new and regular host, Haydn Fitz-Williams, the man with the fivers to give away...

Write and tell HFW what you think about anything under the Sun! Reach him at: **Express Mail, 30 Monmouth Street, Bath BA1 2BW.** Sorry, no personal replies, even with an SAE, as we're too busy writing the magazine.

grammers who haven't yet passed their driving test.

And sure, there are hypocrites in every walk of life. I know of journalists — and even magazines — that use pirate or review software to do their daily work. After all, there are few people who can genuinely claim to be squeaky clean in everything they do; we're all human, not perfect supreme beings you know! What ELSPA is trying to do is educate people, bringing the fact that 'casual' piracy is morally and legally wrong to their attention. You might be able to help them, by passing on a few details...

Anyway, I had a massive response to the letters from 'Kopite' and 'Computer Freak' in Issue 103, and the week after next I'm going to be running a special piracy debate in these pages, raising some of the points made with ELSPA and sundry industry figures. If anyone would like to add some new or original perspective to the debate you should put pen to paper, double quick.

HFW

■ Amiga Fan

I have been reading Express since I obtained my first computer, which I bought to assist me in my business. I was going to buy an Amstrad PCW, because as far as I knew at the time, all I would have used it for was word processing and maybe accounts. Having talked to someone who was knowledgeable on this subject, I had my eyes opened to other possibilities I could use my machine for.

I work as a Disc Jockey and I mix, rather than talk as a personality D.J. So I was sold on the sound capabilities and a few other facets of the machine. I went out and bought a Commodore Amiga 500. This has proved to be a boon in every way. I also run my own record shop where I run a mail order service, and I now use the Amiga to do Desk Top Publishing to produce a professional-looking mail order brochure. At the time I got my Amiga there were not many good accounting packages for my machine so I struggled along with Transformer and ran Sage Accountant

Plus as the PC does have some good packages. When KCS's PC board came out I bought one of them. I now consider that I have the best computer for my needs

I had looked at the Atari ST range and found them to be a little cheap-feeling or so I thought. The point of all this is that in the past I have read with amusement the bleatings and whinings of the "My Computer is better than yours Brigade" with amusement — at the age of 31 I consider myself mature enough to realise that every computer has its own strengths and weaknesses.

However when Steve Carey has a dig at the Amiga practically every week in his column I find it laughable that you wonder why you keep on getting the letters! This week's issue had him ranting on about the "ST being overtaken by a lesser machine". Well OK the guy is entitled to his opinion but in the above uses I have found the Amiga more than adequate for my uses.

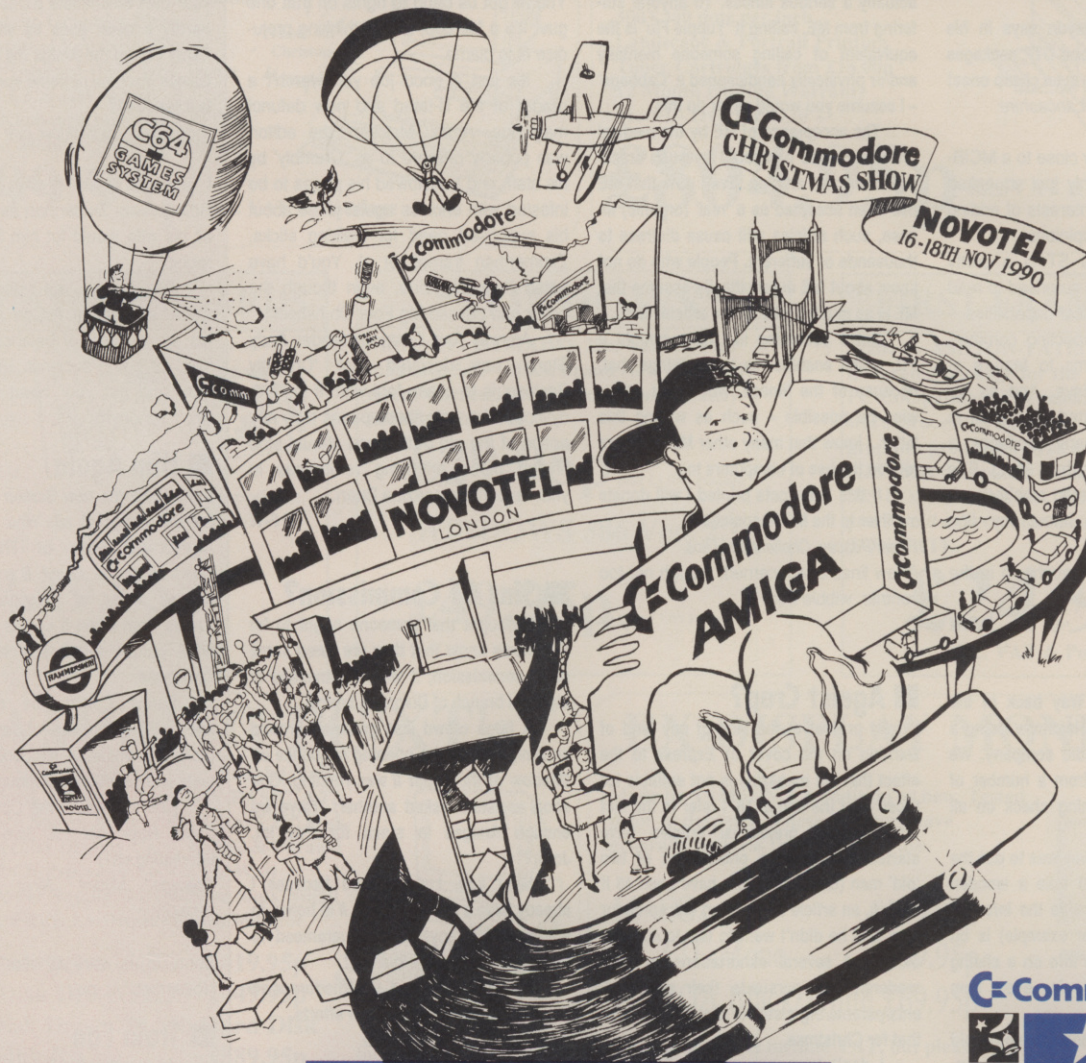
Indeed on the subject of sound the Amiga is gaining on the ST and in some cases has overtaken it. For instance I use Mastersound (amongst others) for sound sampling and when sampling at the highest rates (55.9 khz, CD's sample at 44 khz) the quality is amazing.

Then on your letters page this week we have the "Amiga Hater". He asserts that the Amiga "does not even assume an identity in any market other than leisure software". This is pure unmitigated rubbish. Ask all the people who use the Amiga for video productions — I know of five in my area alone. Ask all the studios going over to the Amiga since the advent of Music X; Disney even used the Amiga in the production of *Who Framed Roger Rabbit*.

The machine is excellent in the graphics area (because of the dedicated chips) and so will obviously be a good games machine. But no way should this computer be thought of as "a console in computer's clothing". I will not knock the ST apart from its awful sound chip and desktop environment, because it has got a wide range of users and in turn fans. But it is a fact that in most shops that stock both

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machines the Amiga is selling better now. This is precisely because of the amount of quality software that has become available for it. On that subject I hope all ST users are now enjoying Deluxe Paint on their STEs because it needed the upgrade to happen before it was worth bothering to do a version for the ST.

By the way, as Haydn says in his reply, there are some good DTP packages available for the Amiga – even cheap ones! C.J. Morris, Blackpool, Lancashire

That came dangerously close to a MCIBTYC letter, CJ, and only just squeaked though the net in the interests of adding balance to Mr Carey's opinions...

Don't forget that the ST is a pretty porky machine, too. I'm surprised to read your views on its musical capabilities – just about any self-respecting commercial music studio seems to feature at least one ST these days. And as for DTP, Keith and I chatted to a man in Moscow whose company produces a Polish computer magazine using STs and Calamus! (He did start slobbering a bit when I told him about my IIfx, though.)

Aargh! I've just been caught up in the MCIBTYC swamp...

H F-W

■ Progress!

What a strange word. Way back in the Sixties I toiled away at Heathrow doing a boring job with a splendid company. We had to service aircraft from a number of airlines, keeping a running check on all their movements.

We found the best way was to use the strip-board method. You take a wooden stick and, when you receive the information that the aircraft (for example) is on 'Finals', jot down all the info on a sliding marker board – thus keeping every item under control.

I called in to say hello to some old friends last week and found lots of gleaming new computer screens in evidence – but all blank. "Having trouble?" I asked. "No," they said, "You can't beat the old system. We only keep the computers as a back-up."

I must call in at the library and borrow the manual for the Abacus ... 'Jim Lad', Burnham, Bucks

More immaculately witty verbiage from El Publisho ...

H F-W

■ Taking Offence

I read your article on the Dangers Of Computing (*Express* 102) and was amazed at Roger Coghill's claims that radiation from monitors, household electrical appliances and electrical wiring are responsible for the increased incidence of cancer and the emergence of new, mysterious diseases such as 'Yuppie Flu'.

I would like to point out that 'Yuppie Flu' is in fact ME (Myalgic Encephalomyelitis) and is a real illness which has been around since before 1930. I realise

yours is not a medical magazine, but as a sufferer from ME I take offence at the use of this slang term – which was made up by the tabloid press when many City dealers and 'Yuppies' went down with ME.

This may seem an insignificant point, but the term 'Yuppie Flu' trivialises what is actually a serious illness. To anyone suffering from ME, calling it 'Yuppie Flu' is the equivalent of calling someone mentally and/or physically handicapped a 'Cabbage' – I assume you would never do this.

The acceptance of ME by the medical profession was hampered by such crackpot ideas and articles. Even now that ME has been accepted as a 'real' (organic) illness, such articles still cause distress to thousands of sufferers. People who do not know about ME automatically assume that ME is as much a joke as the article itself.

Since becoming ill I have bought a PC, which enables me to do things that, because of the illness, would not otherwise be possible – such as writing this letter. I know that many other ME sufferers rely on the use of computers too.

If this letter gets printed I will donate my fiver to the ME Association. Roger Peacey, Cheltenham, Glos.

A few lines of concerned, though not too contrite, wibble from ...

H F-W

■ Ageist Crap?

I must protest at the lack of any kind of warning on the cover of *Express* to the effect that the magazine is not suitable for those over the age of 18. I refer to the fact that blatantly prejudicial articles have started to appear: a photograph of two 'old' men (God, they must have been 45 if a day!), an article on a young entrepreneur who said he didn't want to talk to 40-year-olds, and several exhortations to your readership to persuade their grandparents/parents/big sister to buy them this or that for Christmas.

I don't have any parents, let alone grandparents (boo-hoo, I'm an orphan); mind you, I have reached the brain-dead age of (Oh no! do I really have to admit this shameful fact) forty, er.. (Scream!) five. But I am certain that I neither suddenly developed cloth ears which prevented me from enjoying pop music, nor fell into a cataleptic trance which curtailed my enjoyment of all the things I had previously enjoyed, at the stroke of midnight on the eve of my nth birthday.

Sexism, you cynically profess to deride; racism you claim to abhor, yet you continue to encourage the belief among your younger readers that those who are too old to have a mummy to tidy their bedroom are imbeciles. Imagine the outrage if Scott McLaren (*Express* 102) had said that he wouldn't talk to Jews, negroes, the disabled or whatever. I wish the young man every success, so what's he go agin' me?

I shall continue to read *Express* every week, because I find it interesting – despite the continual jibes at me and my contemporaries. I hope to see less of this

prejudicial attitude. Or is it that you do not want decrepit sub-humans to share your interest in computers? Please keep the answer simple: I find long sentences hard to understand.

Brian Douglas, Morecambe, Lancs

You've got us bang to rights on that one guv. It's a fair cop, and unthinking prejudice is to blame.

It's just a good job you weren't a reader of the ill-fated and now defunct magazine, *Amtix!* Malcolm, the editor, was publicly referred to as 'Crumbly' by his staff, and he allowed his pages to be infested with endless ageist jokes about his supposed need for walking sticks, Zimmerman frames et al. You'd have hated that magazine, even though the editor had passed Big Four Oh himself!

Anyway, our illustrious leader Andy Storer has declared that 'Crumbly Bashing' is to cease forthwith. If the kid-dywinks who write these pages take any notice of the old buffer, you should stop finding these annoying references in your favourite magazine Brian.

H F-W

■ Sins Of Commission?

I just thought that someone ought to let Psynopsis know that they are owed some sales commission, if what I witnessed in my local branch of Dixons is typical.

A large crowd was gathered around an Amiga whilst the opening sequence on *Shadow of the Beast II* was running. One shop assistant asked another: "Have we enough Amigas in stock for this lot, John?"

Mind you, I am biased because I already have a copy of *S.o.B. II* at home, in stereo. But if anything is guaranteed to help sell computers – this is it!

Surely Dixons and Commodore owe Psynopsis something for their efforts. A McClean, Burntwood, Staffs.

Even more right-on ranting from the Supreme Being ...

H F-W

■ Unusual Books

I don't have a copy of the magazine 2600, but I do have the address – from a book called *Beating the System* by Owen Bowcott and Sally Hamilton, published by Bloomsbury.

Other books that might interest you are the infamous *Hackers Handbook* and *The Computer Underground*. Both are available from an outfit called Loompanics Unlimited, who describe themselves as 'publishers of unusual books'. The address is: Loompanics Unlimited, PO Box 1197, Port Townsend, WA 98368, USA.

By the way, does anyone know about a magazine called *News Bytes* often referred to in *Popular Computing* – I've had problems trying to get hold of a copy.

No wonder! It's not a magazine, it's an on-line news service, rather like Reuters or PA, but specialising in computers.

H F-W

MAIL SHORTS

■ Bad Example?

How can you stop the 'My computer is better than yours debate' when one of your own columnists participates in it? Hardly a week goes by without Steve Carey calling the Amiga the Commodore Games Machine or some such synonym. Is it jealousy?

John Quinn, Co Wicklow, Eire

I expect Steve always wanted a Rottweiler or Doberman as a pet – but all his wife would let him have was a rabbit.

I've broken my own rules this week, and let an Amiga owner have his say by way of balance. Here's a fiver for being succinct. Buy a dictionary and get your head around the word 'synonym'.

H F-W

■ Him Again

I don't like the new Screen Gems pack for the Amiga at all. Who ever chose *Nightbreed*, *Days of Thunder* and *Shadow of the Beast II* must have a warped sense of judgement on the games front when it comes to deciding what people might like to play this Christmas.

Surely Commodore could have been a little more careful over what they picked – whatever happened to good taste and careful moral thought?

(Did you watch the Oprah Winfrey Show, November 1st, 5pm Thursday? Interesting eh?)

Teenage Mutant Ninja Intellectual, Tyneside

Some of us were at work at 5pm on November 1st, pal.

H F-W

■ Train Fan

I would like to take the opportunity to publicly thank Atari UK for the brave decision to take their show onto the road (or rail, in this case) and not follow everyone else by staying in London.

M Steller, Manchester

Your Mission: 'To publicly thank where others fear to praise', has been achieved.

H F-W

■ Chain Gang

One thing you failed to mention in your article about chain stores was the lack of training given to sales assistants.

I started my working life as an 'apprentice' in a very prestigious department store – all my first six months were spent sticking price labels on saucepans and suchlike. After this, I refuse to sign my 'apprenticeship' papers and left.

Finally, and this applies to many jobs, 'if you pay peanuts, you get monkeys'!

D Griffith, Hammersmith

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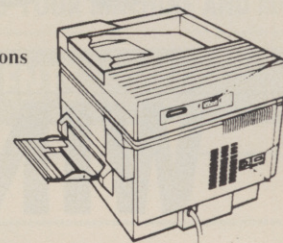
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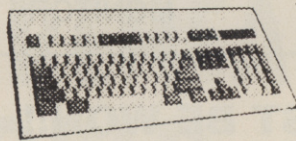
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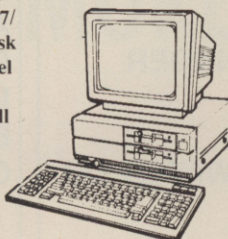
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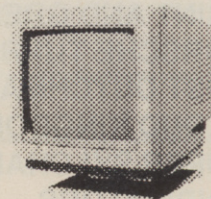


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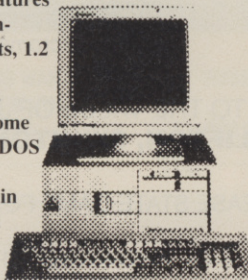
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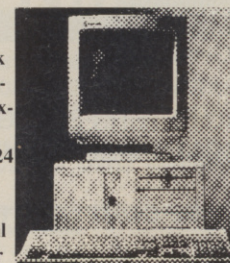


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- A) Rick Dangerous
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- C) Jinxter

3) Where does the
word Amiga originate?

- A) Huddersfield
- B) Spain
- C) Italy

4) Which of these is a
software house?

- A) Microprose
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Amiga**AMOS PD FLOODS IN**

When Mandarin released its AMOS BASIC system onto the Amiga market a few months ago, it heralded a new era in programming accessibility. No longer was Amiga programming a pastime for bespectacled boffins only - at last, even relatively inexperienced users could fully harness the power of the Amiga hardware.

Already we're starting to see the results of AMOS with the release of a vast number of PD programs. To handle this influx of new software, the AMOS PD Library has been set up with the official blessing of the producers of AMOS, Mandarin Software. Run by Sandra Sharkley, the club sets out to distribute AMOS programs for a minimal charge. Better still, even if you haven't bought AMOS yourself, most of the programs will run on their own now that RAMOS (the AMOS runtime system) has been released.

Most disks are priced at the usual PD price of £2.50. But for better quality programs, the price rises to £3.50. Sounds like blatant profiteering? Not at all. Instead of lining Sandra's pockets, that extra £1 gets sent to the program's author to encourage them to develop more programs. In this way, the more disks are sold, the more cash that the programmer earns.

The AMOS PD Library is always on the lookout for quality AMOS programs. If you've written something decent, then contact Sandra immediately. If it's good enough, then you too could receive £1 for every disk that Sandra sells under her license-ware scheme.

AMOS UPGRADED (AGAIN)

The AMOS PD Library has now also taken delivery of the latest upgrade disk for the AMOS interpreter.

Although AMOS 1.2 has been available for a while now, it managed to actually introduce bugs whilst it was removing them. Very helpful. According to Mandarin, a bug was introduced that managed to screw up the calculations on computed sprites. However, this will now hopefully have all been cleared up with the release of AMOS 1.2.1.

If you obtained your AMOS upgrade disk (v1.2) from the AMOS PD Library, then you can get a free copy of 1.2.1. All you have to do is send your original upgrade disk back to Sandra, together with 50p to cover the administration and posting costs. For those of you who obtained it from other means, Sandra will sell you a copy for £2.50.

For more information try phoning Sandra Sharkley on 0942 495261.

GAMES NEWS

Mirrorsoft has announced that it is soon to release *Chaos Strikes Back*, the follow up to the cult classic *Dungeon Master*. FTL, the American software house behind both *Dungeon Master* and *Chaos*, originally announced that it had no plans to produce *Chaos* for the Amiga, but it is believed that the machine's strong position in the market place may have convinced it to take a U-turn on the earlier decision. It is unknown whether the new game will work on 512K Amigas.

On the subject of Mirrorsoft, it's also soon to release a movie licence based around the soon to be release film *Predator 2*. Unfortunately Arnie Schwarzenegger's biceps aren't in the new movie, but the film (and the game) promises to be as action-packed as the first.

Gremlin certainly seem to be getting into Motorsport in a big way. After the recent release of its official *Lotus Esprit Turbo* game, the company has tied up a similar deal to produce a rally simulation based around that four wheel drive, 16-valve 2.0 Litre turbo-charged mean machine, the Toyota Celica GT4. Work is still in progress, but it looks good.

Domark has managed to grab the licences to several Atari coin-ops, some of which haven't even appeared in this country yet. Hottest of the lot is *Hydra*, which is an action packed game that seems to be a combination of *Offshore Warrior*, *Fire & Forget* and *Operation Thunderbolt*. You're an international courier that must deliver secret parcels through terrorist-infested waterways. Other Atari coin-ops to receive the Domark treatment include *Thunder Jaws*, *RIB 2* and *Skull & Crossbones*.

ULTIMATE AMIGA BUNDLE

Bundles. Bundles. Bundles. That's all we ever see from Commodore these days - and a good thing it is too! But up to now, the bundles have largely been aimed at the home user who wants to do nothing more than play games (which isn't necessarily a bad thing). Wouldn't it be nice if Commodore would pull together a pack that would exploit the Amiga's capabilities to their fullest.

OK, chucking in *DPaint* is all very nice, but what about a music program? And how about a decent Amiga-based word processor? And perhaps even an animation program. Such a pack would not only offer real value for money, but it would also act as a perfect advertisement of what the Amiga is capable of!

Here's my idea of the perfect

Amiga bundle – *Deluxe Paint III* (paint and animation all in one!), AMOS (forget Amiga BASIC on the extras disk, get stuck into AMOS straight away), *Pen Pal* (the best Amiga-based word processor available), *Music-X Junior* (a MIDI and sound chip-based music package) and *Master Sound* (give 'em a sound sampler to play with - it can also be used to grab sounds for use within *Music-X Junior*).

What kind of programs would you like to see within the 'ultimate' Amiga bundle? Why not write in and tell me. Who knows, perhaps the big-wigs at Commodore will read your suggestions and put them into action.

SCAN AND DELIVER

Until quite recently, Naksha had little more to offer the Amiga market than a replacement mouse. Now it has announced the impending release of a hand-held scanner, which promises to deliver the same kind of price vs performance factor that made the Naksha mouse such a winner.

The scanner offers switchable resolutions between 200 and 400 dpi. Using dual roller tracking, the scanned

images come out distortion-free. Each scanner comes with the appropriate interface, 'Express IT' scanning software and a free copy of Electronic Arts' *Deluxe Paint II*.

Naksha has also been hard at work redesigning its acclaimed mouse. The original mouse came bundled with different leads for different makes of machine, but the new mouse can be used on both the Amiga and an ST simply by flicking a switch on the mouse's underside. The new mouse also looks a lot nicer and is somewhat more ergonomic.

Since that fateful day when my aged Commodore mouse passed away, I've been using a Naksha mouse. They said nothing could ever replace it, but the Naksha mouse has more than proved itself. It offers a much higher precision to Commodore's mouse, is much smoother and it also just happens to look much nicer. Even if your mouse hasn't kicked the bucket yet, put it into retirement and treat yourself to a Naksha. For more, give the Naksha lads a bell on 092556398.

Jason Holborn

Archimedes

STICK TO YOUR GUNS

Is your trusty Archie keyboard being bashed to bits by the continual onslaught of frantic firing and non-stop alien killing? Would you rather be using one of those big black plastic jobbies covered in huge red buttons? Well now you can! There are currently two joystick interfaces available for the Archimedes, one from the ever versatile Serial Port and the other from the rather peculiarly named Fungus the Bogeyman. As you may have noticed the only socket an 'Atari-style' joystick would plug into on the Archie is the RS232; this not being terribly compatible with joysticks means that some other means of connection is required. Both the interfaces here plug into the printer port and a relocatable module is supplied to make joystick movement emulate key presses.

But that's where the similarity ends. Fungus' interface weighs in at £12.99 and consists of one male 25-way D type plug connected to a male 9-way D type by means of about half an inch (1.15cm to any EEC readers) of ribbon cable. The module supplied adds five * commands to reprogram, keys are emulated by the four joystick movements and the fire button. Once installed correctly, waggling the joystick generates the correct key up/key down events and also works with the various INKEY- key reading routines. However, it does not insert ASCII codes into the keyboard buffer. The main problem is that the interface

itself completely hogs the printer port and although the Impression dongle can be used in series with it, you cannot plug a printer cable in at the same time.

On the other hand, The Serial Port's interface has, additionally, a female 25-way D type allowing a printer to plugged-in as well. Two 9-way plugs and a toggle switch complete the interface, which is about two and a half inches long – roughly the same size as an Impression dongle. The switch swaps between joysticks and printer so, although you can't use both at the same time, at least you can leave them both plugged in. If you have an Impression dongle you must plug it into the back of the interface otherwise the joysticks won't work, but then you have to remember to switch the interface to printer to allow the dongle to function!

The best feature of the interface is in the supporting software. Not only can you make the joystick emulate simple key presses (it correctly inserts ASCII codes into the keyboard buffer as well) and even mouse movements and button presses, but a complete programming language is provided. This allows you to say things like 'press T if the joystick is up and the fire button pressed'. Various flags can be set, allowing variable speed auto-firing and different joystick 'modes'. It will also detect so called 'stirs' of the joystick. A large number of example programs are provided to set the

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joystick up for various games.

All in all a very impressive and exceedingly versatile setup, but then at £23.95, it's almost twice the price of Fungus'. If you can afford it, then The Serial Port's interface is well worth the extra cost, but then Fungus' is perfectly acceptable if you don't regularly use a printer. The Serial Port is on 0243 531194. Fungus is on 0742 680539.

MY CHEATIN' HEART

I must admit I haven't been doing much work over the last week or two, what with joystick interfaces and the like. Instead I've been spending my time trying to finish *Mad Professor*. Occasionally I've not even bothered to play it, I've just simply listened to the dead-funky music in the chemistry lab! After a couple of days I'd managed to finish each of the levels separately, but couldn't quite do them all in one go with only the standard four lives.

Hmmm, me thought, *Terramex* had a cheat mode, what about *Mad Prof*? Out came the disassembler and an hour later I had infinite lives. But (and it's a big but) only a bodged poke, you see there seems to be an official cheat mode to stop ol' Mariarti dying. But try as I may, I couldn't work out how to switch it on. Don't worry, I'll be sure to tell you if I find it.

PS. The fifth and final laboratory has some very nasty bits in it!

LENDING A (DAB)HAND

Midnight Graphics, the graphical side of Dabhand Computing has a couple of very interesting products in the pipeline. The first, scheduled for release in a month or so, is an image processing package. Called *Midnight Tracer*, its main function is to take a bit-mapped sprite and 'trace' its outline and turn it into a draw file. Unlike some similar programs it will correctly convert curved surfaces into bezier curves. The program will also convert 256-colour sprites into 16 greys and monochrome images (which can then

be traced). An obvious application would be to be able to effectively rescale a sprite to any size but still retaining its smooth edges

As a follow up to *Midnight Tracer*, *Illustrator* should appear sometime next year. This will be a multi-mode paint package and will feature much of the functionality of *Tracer*. It will also be able to convert a freehand sketch (drawn with the mouse) into a series of bezier curves. There is no price as yet for *Illustrator*, but *Tracer* should cost £59.95. Dabhand Computing is on 061 766 8423.

TECHIE TIPS

Many of you will know that INKEY-n can be used to check if a given key is being pressed, this function originated on the BBC and, due to the rather peculiar way the keyboard was wired up, the value of n could not easily be guessed. An undocumented feature of this function was that checking INKEY-129 (not one of the internal key numbers) returned -1 usually and 0 if any key on the keyboard was pressed. I needed to use this function on the Archie the other day, but found that it no longer seemed to work. Closer inspection revealed that if no keys were pressed, the function returned 255, but that if a key was pressed, it returned the internal key number of that key. Very handy, but rather unfortunate that it returned 255 instead of -1 when no key was pressed.

Ken Coumarin

LATE NEWS

I've just been handed two items of late news, firstly it is unlikely that Magnetic Scroll's *Wonderland* will be available before the new year - Boo! Secondly, Computer Concepts' *Equasor* is coming along well, I've received a very pre-release version that has some rather unfortunate bugs in it. Full coverage when I see a working version. Next week, I promise, I'll reveal all about the '10 uses of the adjust button'.



AMSTRAD'S RESULTS

Oh dear. Oh dear, oh dear. Amstrad's financial results are in, and they don't look too good. Last year's profits were a mere £76 million compared to the year before's £160 million, and this year they're down again - to a paltry £44 million.

Actually, in the current economic climate that's not too bad, especially when you take a look at the figures being turned in by other hardware manufacturers.

And one of the most curious things this year is the attitude of the

press. Last year, they were positively dancing on Amstrad's grave. Last year, Amstrad was the company that they all loved to hate, possibly because Amstrad's attitude towards the press has always been about as warm as a pit of liquid nitrogen... This year, though, Amstrad's results are being treated a bit more calmly, possibly reflecting Amstrad's own shift away from its belligerent, bullish attitude of years gone by.

And close on the heels of Amstrad's annual figures being released comes news that the father of

the CPC himself, Roland Perry, is leaving his post as Amstrad's technical manager to set up on his own.

His new company is called Perry Technological Consultants, and will be based at: 12 Couching Street, Watlington, Oxford OX9 5QQ.

As well as designing the original CPC (and even having an entire series of computer games named after him), Perry had a leading role in the development of the new Plus and GX4000 console.

SERIOUS SUPPORT

After playing Gremlin's *Shadow of the Beast* solidly for about a week, you'd have thought I'd have had enough of gaming for a while. Not so, because what should turn up but a brand, spanking new Switchblade ROM. This is Gremlin's first game on the console, but I sincerely hope it's not the last. I've been glued to one of our new Pluses for hours playing this little devil and it's brilliant. The graphics are stunning (even though they're in four-colour mode) and this is one huge game. Look out for a proper review soon.

Meanwhile, things have been quickening up on the serious side, too. In particular, thanks to WAVE and Microstyle, two long-running stalwarts in the CPC peripherals world. These two companies are amongst the first to embrace the new Plus machines, concentrating on ensuring compatibility with the old models. It's good that the machines are getting this kind of support, because Amstrad itself seems to have lost interest in the peripherals market.

AT LAST - UPGRADE YOUR MONITOR

How would you like to upgrade your green screen to a colour monitor? In the past, CPC owners have been totally stumped when they've wanted to opt for colour because of Amstrad's policy of selling the machines as complete systems. Basically, unless some kind soul decides to swap with you or is flogging off the bits of a broken system, there's simply been no way of getting hold of monitors on their own.

Aha! That is you guessed it! - until now. WAVE has managed to get hold of a number of colour monitors, which it's selling off separately for the incredibly tempting price of just £99, with £5.75 p&p.

WAVE is at 1 Buccleuch Street, Barrow-in-Furness, Cumbria LA14 1SR (0229 870000). Make sure you specify whether you have a 464 or 6128 when you order (they use the CTM640 and CTM644 monitors respectively).

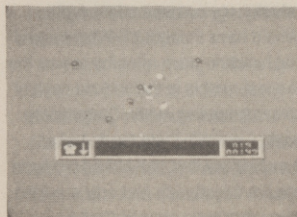
KICK OFF II

Anco's original footie sim was a great hit on the 16-bit machines because it combined good graphics with high speed and terrific playability. The

Amstrad version, when it finally appeared, was just as fast, just as playable but had graphics which were minimal in the extreme...

Which is why I was so keen to see the follow-up, *Kick Off II* (£9.99 tape, £14.99 disk). And the good news is that the graphics are transformed. It's just as playable as the original but looks suddenly like a proper Amstrad game and not a ghastly Speccy port!

Among the options are the ability to play single matches, compete in international 'friendlies' (there's no such thing with two humans playing!), tackle a league competition or even enter for the cup. You can also choose



• Kick Off. One of the best of a good bunch

from four different playing surfaces, five skill levels and even four different wind strengths!

This year has seen a whole host of very good football games on the Amstrad, and *Kick Off I* looked pretty sick in comparison with the best of them. *Kick Off II*, though, is a whole new ball game.

STARTING OUT

Something I'm always getting letters about is help for beginners - where is it? It's all very well for those of us who already know most of the ins and outs of computing in general and the CPC in particular, but what about those poor souls just starting out? Most computer magazines make perfect sense to experienced users, but are just a mass of jargon to beginners.

Which is why *New Computer Express*'s sister mag *Amstrad Action* is starting a whole new section for beginners. It's called Ask Alex and will be hosted by AA's newest contributor, Alex van Damm. Alex has been a CPC owner for three years and knows the machine well. But she also has a down-to-earth attitude about computing. "It's a minefield for beginners," she said on the 'phone the other day, "it can make no sense when you're just starting out. These things can all be explained very simply - it's just that most 'experts' love blinding people with science."

Alex will be answering all reader queries, she says, "it doesn't matter how daft the question is, I'm not going to take the mickey."

If you've any computing, queries write to: Ask Alex, *Amstrad Action*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW

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64

RETURN OF THE IF... THEN... ROUTINE

Things are going well for Commodore at the moment. It was not always thus. A retired schoolmaster recently sent me a photocopied front page of *Popular Computing Weekly* from 1985 bearing a headline announcing the death knell for a struggling Commodore International. In the light of their subsequent emergence as leaders of the home computer industry, my correspondent wrote, 'Who'd have thought it?' What he and that headline were referring to was the deepest rumble in the darkest days of home computing, when Commodore went plummeting into the red after launching several half-baked products in quick succession and only survived minus one main plant in Corby. Figures estimating the company's losses escalated weekly, along with the number of redundancies. For a while, with Atari practically out of action and Acorn's Tim Curry being quoted as saying that he couldn't envisage the widespread need for more than 32K of RAM among home computer users, it seemed that the only route to 16-bit might be via Sir Clive taking us all for a Microdrive.

Commodore was saved by the longevity of the C64 and the establishment of the Amiga, much to the relief of the user base at large. Now people sit back and dream of Amiga portables or dust off C64s and look out for new cartridges for a system they know will be around for some time to come. The launch of the console is a sign of the Big C's new awareness of what it takes to survive. They're paying attention to the way the market is shaping up and (hopefully) no longer entertain crazy ideas about launching home computers or 'games machines' crammed with non-standard ports and which are completely incompatible with the rest of their own range. In fact, most people agree that, apart from anything else, the C64GS represents a very smart move.

So why have the company's profits dropped \$50 million in the last fiscal year? In 1989 the company reported profits of \$51.3 million as opposed to \$1.5 million to June 1990. A press release from Quentin Bell, PR company for Commodore International's British subsidiary Commodore (UK), pays these figures scant attention and concentrates instead on Commodore (UK)'s 57% upturn in total turnover, which doesn't sound bad, a rise from £43 million to £75. But nothing is mentioned of Commodore (UK)'s profit or loss.

Commodore International and Commodore (UK) is aware of this

omission, of course. That's why it bothered to note that the appalling performance is 'principally due to three main factors'. The first of these does imply that most of Commodore's problems aren't the fault of the UK operation. 'The strength of the dollar has contributed to a drop in sales value - more than 80 per cent of Commodore's sales are in export market places.' But nor does it say much for that 57 per cent increase in turnover.

The second factor, says Commodore, is the rising cost of 'marketing and sales initiatives'. They don't do themselves justice here. CDTV hasn't been marketed at all yet, but R&D doesn't come cheap. Nevertheless, Commodore has prepared a Christmas TV advertising campaign for its existing range, which is going to be pricey. And this is in the face of Kelly Sumner of Commodore UK saying that the 64 never needs more than a standard run of one-page ads in the national dailies to ensure it stays firmly fixed in the user base at large. Finally, the Bell press release points to a shift in strategy, during the last quarter of the fiscal year, in which Commodore International concentrated on the Amiga rather than the C64. This apparently 'has reversed the decline' on the grounds that sales fell but the margin increased. Fine, but it took a long time.

Yes, this column's loyalties lie with the 64. But let's be pragmatic about the situation. Commodore International now doesn't sound financially much healthier than it did five years ago. The difference now is that it has got a much better range of machines and seems to be supporting them. It would be foolish to use the Amiga to keep the C64 afloat and even if Commodore considered such a move the kind of problems that strategy represents can't be shouldered by any one range. What it would do is threaten the future of the C64.

Nobody likes to see their favourite machine disappear. While obviously that has to happen eventually, when it comes it is hopefully for a good reason and not due to small-mindedness. The 64 has served Commodore well for many years and the future for it and the console, based on what many people still want, seems to look reasonably bright. But it's Commodore itself that is more at risk. I just don't want to get a photocopied cover from a 1990 'Express' bearing a celebratory CDTV or console headline sent to me with a letter asking, 'Who'd have thought they would go bust?'

Sean Masterson

PC

SHUFFLING ALONG

Shufflepuck Café is an arcade conversion with a difference. Rather than mimicking the loud and brash cabinets, where hordes of invading aliens are daily repelled by ten pence pieces, it turns instead to the quieter end of the arcade, near the rifle shooting game and the table football.

Shufflepuck is the American name for air football – those pool table sized machines with a sheet of stainless steel riddled with holes through which compressed air is pumped. A circular plastic puck is suspended, hovercraft-style, above the playing surface and can be propelled with ferocious speed at your opponent's goal with a flick of the wrist.

Shufflepuck Café is a computerised version of this seaside favourite but, perhaps to dispel the wet Wednesday in Torquay image, your opponents are a very strange bunch. You choose which player you wish to meet by clicking on the appropriate one from a charming group picture. You can take on Vinnie the Dweeb (a very accurate player), Princess Bejin (who uses magic to guide her shots) and DC3-ALSO (a robot whose style you can program) among six others.

In play you control a paddle with which you knock a puck up and down the playing field, attempting to hit the opponent's goal. A mouse is the obvious controller to use, and you need to have your mouse driver installed before loading the game. It is possible to use a joystick, but it is extremely difficult and not at all recommended. I tried several mice with the game and found that optical mice, with their smoother action, were ideal. Mechanical mice had a tendency to slip, causing you to miss a vital shot.

In play the game is fast with a realistic perspective effect. Slow rebounds tend to show up the progressions of the puck as it gets larger coming towards you, but with most shots the movement is smooth.

Some nice animations show your score and place the puck, and it even attempts to push some digitised sound effects through the PC's speaker – nice try, but no prize.

Overall, *Shufflepuck Café* is a competent game, but it lacks any depth of play and there is only one challenge. It would be nice to have seen some other mechanical arcade games included as second or third levels. As it stands, *Shufflepuck* is a perfectly nice enough game, but in the absence of any real inspiration will quickly become boring.

Shufflepuck Café costs £24.95 and is available from Domark on 081-780 222.

MORE GAMES

More news on the games front from Domark is that the four adventure cum educational games which feature Carmen Sandiego have just been released on the PC.

These adventures involve problem solving based in a number of geographic contexts (or places, as we call them). The Americans love the Carmen series, they just can't get enough of this 'most sought after woman in the world'.

If you fancy giving them a try, *Where in the World is Carmen Sandiego?*, *Where in the USA is Carmen Sandiego?*, *Where in Europe is Carmen Sandiego?* and *Where in Time is Carmen Sandiego?* are all available for the slightly OTT price of £34.95.

MISSED POINT

In the flurry of the Business Solutions show the other day, I caught hold of the wrong end of the stick with regard to Quarterdeck's new product, Desqview /X. I said that it would allow Unix and DOS programs to be run on a PC simultaneously. It won't, at least not quite.

A bit of background. Many Unix programs use a graphical system called X-Windows. This is a setup which lets the Unix program issue commands like 'draw a line in red from A to B' or 'display such and such a window on the screen'. A separate program then translates those commands into the actual coloured dots on the screen. The advantages of this system are that only the translation program has to know about the display hardware, so applications themselves will run on any setup which has an appropriate translator. And, since the X-Windows commands are small compared with the data taken to display the screen, there is no problem with having the application on one machine and the translator and display on another, linked over a network.

And this last is where Desqview/X is really going to score. It is basically the standard Desqview multi-tasking operating system (if you don't know about Desqview and you have a 386, phone Quarterdeck 0245 496699 and start making proper use of your machine) with an X-Windows translator tacked on. This means that it uses pretty graphical windows instead of Desqview's text ones (big deal), and can run DOS X-Windows applications (of which there are, er... none). So why the fuss?

Desqview/X can appear to a Unix application on another machine on the network like any other X-Windows compatible machine. That is, the Unix

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DOUBLE COMPUTING

application will happily display its data and take commands, oblivious to the fact that it's a DOS machine at the other end of the wire.

But it gets better. *Desqview/X* tweaks ordinary DOS applications so that they too look like X-Windows applications. It does this by capturing all their attempts to write text onto the screen and translating them into X-Windows commands. Now other machines on the network can use those applications as if they were running on a Unix machine.

The bottom line is this. You can have a program running on a Unix machine displaying data on a DOS machine. The Unix machine can simultaneously be displaying data from a program running on the DOS machine. And both machines can be managing this trick with several programs at once.

Desqview/X is a remarkable program which it is worth spending time trying to understand. Quarterdeck has a little booklet which explains it very well, as well as being a good primer on X-Windows and multi-tasking. Get a copy.

TIP

I thought I'd do a few tips for GWBASIC users this week – so here's the first one; buy Microsoft's QuickBASIC.

This interactive editor/compiler really is so much better than the free interpreter that comes with most PCs

that there's no comparison. What's more, it will take all your old BASIC source code too. You can buy version 4.5 (don't buy anything earlier) for as little as £45. You won't regret it.

While you're still saving those pennies how about some fast animation in GWBASIC? GET and PUT work well enough for small sprites but for a large image the redraw is simply too slow to be effective. So how to speed things up? What you do is prepare each screen in advance – one for each position that the large sprite will occupy. Save these using BSAVE. Use DEF SEG to point to the screen (B800 for low resolution CGA screens) and call BSAVE with the amount of memory to save – 16K for CGA.

```
10 DEF SEG = &HB800
20 BSAVE "D:PIC1", 0, &H4000
```

I can't provide a complete listing since I don't know what hardware you have. Anyway, all the details are in the GWBASIC manual (that's where I found them).

Notice that the file has been saved to a RAM disk. Set this up to use all of your PC's memory less 64K (which is all GWBASIC needs to run) you can now store six screens for every 100K of RAM disk. This should leave you room for at least 26 images on a 512K machine. Use BLOAD to put the images on the screen sequentially and watch those balls bounce (or whatever it is you're animating).

Steve Patient and Stuart Anderton

Spectrum

XMAS TIME

As I write this there are a mere 40 days left to be told how many days left there are until Christmas. So I thought it might be an idea to find out exactly who's selling the cheapest Speccies in Britain. I'm interested in the whole range of Spectrums from old 48K rubber keyed classics to the Plus-3 and it doesn't matter if they don't come with light-guns or bundled software. Suppliers and customers should send full details about their big, bold, red, exclamation mark laden, capital lettered bargains to me at the usual *Express* address. To qualify, the cheapo Spectrums need to be legal, honest and decent and available in reasonable numbers.

TROUBLED TIMES

The last few months haven't, on the whole, been all that good for Spec chums, what with the apparent failure of MGT (although there's been a stirring recovery there) and the recent untimely demise of the Plus-3. But I think it's worth looking a bit more positively at exactly where our fave

computer lies as it approaches its ninth glorious year. For a start, the Spectrum still makes up a very sizeable chunk of computers sold in Britain and the Plus-2 is sure to sell approximately loads this Christmas, despite Amstrad's apparent disdain for the thing.

Secondly, the Spectrum scene is still vibrant and throbbing with enthusiasm, plenty of software, fanzines, public domain and user groups as well as the largest readership of machine specific magazines. There's the Coupé, which with the help of Miles and Gordon seems to have survived the death or severe illness of MGT and still looks to have a healthy future ahead of it. And, best of all, in recent weeks we've found out more about the Soviet Spectrum called the Hobbit which, along with emulators for various 16-bit machines, should guarantee Speccy-compatible computing for a long time yet. Not forgetting continued employment for me as well of course. Let me know what you think of the Spectrum's current standing, the

Hobbit, the Coupé and the future by writing in to me at *Express*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW.

HOW ABOUT ZAT

I know I've plugged it several times in the past but here's another favourable mention for one of the best Specy fanzines around at the moment, *Advanced ZAT Programming*. At least that was what it used to be known by, the new shortened title flashily emblazoned across the cover is simply ZAT but the contents inside the mag are as good as ever. Highlight of issue four has to be the first pulsating part of a scoop interview with *Your Sinclair's* resident dreamboat Editor Matt Bielby. There's also some interesting stuff amongst the 27 pages; like game reviews; programming sections for PAW and machine code; a brilliant looking comic strip; All Formats Fair report and comics column. It's all fairly well written, nicely presented and with some truly fab artistic embellishments, courtesy of resident arty type D Blackburn. Well worth the asking price of 60p plus stamp. Cautious, tight-fisted miserly types can also get a special sample issue, for 20p plus stamp. The address is ZAT, PO Box 488, Tweedale, Telford, Shropshire. TF7 4SU.

SAM

I keep getting letters demanding continued coverage of the SAM in the column, or else. Some of the threats of violence actually seem quite convincing so I thought I'd better comply. Just about the first piece of independently released hardware is now available for SAM and it's apparently pretty good.

Blue Alpha Electronics has released a speech synthesiser for our blue-footed chum which says exactly what you program it to say through the TV without the need for any extraneous bits and pieces.

It costs £29.99 and is available from Blue Alpha Electronics who are

situated at Ynysforgan Farm, Morriston, Swansea SA6 6QL. Good old SAMCO is also about to launch the SAM mouse in the near future.

MIKTOR

Here's that regular part of the column which always gets taken over by a certain MA Harris, alias Miktor, of Faversham, Kent. No pokes or cheats this week but a comment on a mail order outfit instead.

MA recently sent off for one of those smashing Plus-D disk drives that Datel now exclusively sells. Anyway, he heard nothing from them for two weeks, despite the fact they claim to despatch orders within 48 hours and then received a letter apparently saying, "If you don't sign this card to say you won't use the device for nefarious purposes then we'll destroy your cheque!". MA says "I found this vaguely offensive, after all if I wanted to pirate games I would save myself £90 and buy a Multiface (Not that I really need any hardware to be able to copy anything.) My question is this; how is my signing a piece of paper going to stop me copying games anyway? They're all bloody mad!"

I think I'm inclined to agree with you on that one, M. Has anyone else witnessed similar displays of hat-stand behaviour by Datel or any other mail order companies? Or does someone from Datel want to comment? Thanks again for writing M!

HELP

If you're a software house that produces stuff for the Spectrum and you want to see reviews and plugs in *Express* send everything interesting that's remotely Spectrumy to me, Robin Alway at Spectrum Column, *New Computer Express*, 30 Monmouth Street, Bath BA1 2BW. Ta very much! Also welcome at the same address are: fanzines, recommendations, comments and anything else of interest to fellow Spec chums.

Robin Alway



SCANNER BREAKTHROUGH

If you are one of the many people who use their STs for desktop publishing – perhaps running one of the many ST-based fanzines, newsletters, works, school and college magazines – you are exactly the kind of person who should be considering investing in a scanner. (If you haven't already, that is.)

For, using such a device, you can input images and illustrations that your DTP program – *Timeworks*, probably,

or *Proxima*, or, if you're really posh, *Calamus* – can accept as part of your pages. This means, when you print out, that you have a neatly printed picture that enlivens proceedings no end at no charge to you.

One very good monochrome scanner indeed is the Golden Image device, from the eponymous Golden Image Ltd. At £149, it is far cheaper than any other scanner of comparable quality.

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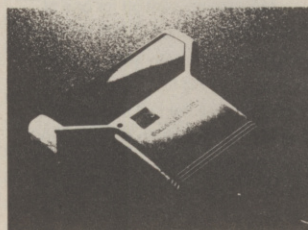
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Neochrome, Degas and Tiny picture formats, among others, as well as including a host of editing functions including rotating by degree, slant, stretch, compress and outline features.

When you consider that the Migraph scanner, from the company that created the *Touch Up* software, was originally on sale for a wallet-mugging £399, you begin to see what a bargain this new peripheral is.

Indeed, the Kempston Datascan Professional, released not so long ago at £199, was applauded as a breakthrough in quality at an affordable price. Now it's been undercut by a good 25 per cent!

The Golden Image scanner costs £149 from Golden Image on 081-518 7373.

FALSE SCART

A couple of weeks ago I mentioned in this column that Philips had replaced its most popular colour monitor with a new version, the nattyly-named CM8833 Mark II. The main enhancements were to do with safety improvements, designed to meet new standards expected to be imposed by the European Community (yes, the very same European Community of which our beloved leader is such a fan of, up to a point).

However – there's always a however. Previous versions featured the standard 21-pin SCART connector for which cables abound. The new model has a 9-pin D type connector for both its RGB analogue and RGBi interfaces and phono sockets for Luminance, Chroma and Stereo sound inputs.

I am indebted to Meedmore Ltd for supplying me with this somewhat arcane and, frankly, high-on incomprehensible information. Its eagerness to keep me up to date in the connector department may not be entirely unconnected with the fact that Meedmore supplies a full range of

connecting leads for STs.

If you wish to follow this lead (snigger), you should apply your index digit to the following buttons on your telephone, in this order: 051-521 2202. **PLEASE PRAY FOR ELIE KENAN (AGAIN)**

A few weeks ago, you may recall, I revealed in this very column that the boss of Atari France had been summoned to Atari's US offices, apparently to act as some kind of saviour. The turning around of Atari's fortunes, I remarked then, was a project on a par with the raising of Lazarus. I invited readers to pray for the man.

It seems not enough of you are devout enough to save Kenan. For rumours are now circulating that he has quit the company, following a row about relocating the company.

PUTTING THE RECORD STRAIGHT

I had a mild rebuke this week, in the form of a phone call from the hirsute Barry Capel, Editor of *GFA User* magazine and all round good egg. 'Oil' was the nub or gist of his complaint: 'I was the one who first unearthed that STE hard disk problem. Credit where credit is due!'

Useless of me to flourish that popular corner shopkeeper's notice reading, 'Please do not ask for credit...' (What is a popular corner, anyhow? And is it anything to do with a small businessman?) For now I think about it Barry was indeed the first to alert me to the 'saga of the hard disks that get knackered' – now solved, thankfully (see last week's *Express*).

FREE PD LIBRARY

In this harsh, commercial world (writes Sir Bufton Tufton of The Old School, Tie) the notion that people might do something for nothing seems increasingly bizarre. But that's exactly what public domain – ie copyright free – software is all about. An author writes a program, sends it out into the big, cold world and asks nothing for its use, except that no money be made from it by anyone distributing it.

The problem, of course, is just what constitutes a reasonable charge for postage, packing, administration, software acquisition and, of course, disks. Some libraries charge £1 or less, others feel obliged to demand up to £3, pointing out that their generosity is of no advantage to anyone if the whole thing collapses beneath an incoming tide of unpaid bills (ooh, came over a bit poetic there).

Mike Goodman, of Goodman Enterprises, for instance, says that he sometimes shells out as much as £50 acquiring a particularly tasty bit of software from some obscure American bulletin board, and may then only receive one order a quarter for it.

So it is both gratifying and intriguing to see a brave soul like David Giffney attempting to supply PD

software on a genuinely free basis. All he asks is that people supply him with the same number of programs they wish to receive. It's as simple as that. The only cost is the member posting his or her software to the library – David even pays return postage.

Take advantage of this amazing service by contacting Your ST Public Domain Library, 28 Barton Rd, Coltishall, Norwich, Norfolk NR10 5JR.

PD FROM HELL...

On the subject of public domain, my column a couple of weeks ago fell victim to the harsh restrictions of lack of space and was duly trimmed – an ego-battering experience, as I'm sure you'll appreciate – and one that also caused me to appear to be saying quite the opposite of what I intended.

In particular I appeared to approve of Paradise Computers' service, when nothing could be further from the truth. In fact, the inaptly named Paradise Computers' latest catalogue is a not very packed 34 pages of mostly run-of-the-mill material, plus the opportunity for a mere £6 'annual subscription' (sic) to get allegedly generous but unspecified discounts, special help service and free gifts.

By receiving the Paradise catalogue you also get yourself a golden opportunity to expose yourself to such delights as disk 'Hard 16SE, Horse Lover, Over 18s only' ('Don't buy it if you are easily offended') and 'Hard 13SE, Caught From Behind' ('involves a bottom').

There's also a cute little picture of

Alice who says, "don't buy any of these disks unless (sic) you're over 18!" So that's alright then. I mean, really.

Self-abusers only need apply to Paradise Computers PDL, 9 Westfield Crescent, Brighton BN1 8JB. Paradise charges £1.95 per disk, plus a cover charge of 50p postage per order.

... AND FROM HEAVEN

At quite the other end of the scale comes the latest edition of Goodman Enterprises' excellent catalogue, now up to a tightly packed 60 pages and full of items you won't find elsewhere – until other, lesser libraries incorporate them into their own.

Something all PD libraries should borrow from Goodman is the convention of including with the description of each disk a bytes and items count. There's also a good selection of introductions, reviews and explanations of available programs.

Each item in the Goodman library is extensively and accurately described, and it's this which has led Mike Goodman reluctantly to introduce a charge of £1.95 for his catalogue, which, if you want my opinion (and I'm going to give it to you anyway) is hardly excessive. As Mike points out, "Many PD libraries operate on a disk catalogue only basis, charging for the disk."

Get your copy of the Goodman's catalogue by sending £1.95, including postage, from Goodman Enterprises, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent ST3 1SW, or call 1782 335650. Disks are £2.50.

Steve Carey

Macintosh

SYSTEM 7

If you read any of the Macintosh press, it won't be long before you hear System 7 mentioned. You might be forgiven for thinking that it's a figment of deranged journalists' imaginations – those of us who've been waiting for well over three years for its release are beginning to find sympathy with that train of thought – but it is, in fact, a major re-write of Apple's System software, which promises to massively improve the ease of using the Mac (if it wasn't easy enough already...)

Apple first announced System 7 about a million years ago. Since then it has been postponed again and again, until at the beginning of this year it seemed that at last there was light at the end of the tunnel. ('Train of thought', 'light at the end of the tunnel' is this man a train-spotter or what?!) Finally, at long last, Apple proudly announced that 1990 would be the year that System 7 would arrive. Developers were solemnly promised

beta versions, and the rest of us waited with bated breath. And waited. And waited.

Finally, around June, we unbated our breath, when it was announced that Apple had actually supplied developers – but only with 'early Alpha versions'. This means that, far from being nearly complete, the software takes up massive amounts of memory, runs painfully slowly and is liable to crash at the slightest opportunity. Ho hum.

Anyway, Apple is now faithfully promising that the release version will be available to users 'in the second quarter of 1991.' Just don't hold your breath.

SO WHAT DOES IT DO?

Right. That's the rant over with. Now let's look at what features System 7 will have when it finally arrives.

First of all, you should know that you will need a minimum of 2Mb of RAM before you can use it at all.



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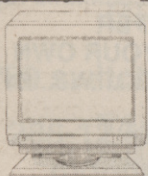
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VISA



Those with only 1Mb will have to stick with good old System six-point-nought-point-whatever.

One of the major benefits of the new System will be that it provides virtual memory for those with Macs running 68030s, or 68020s with a PMMU chip fitted. In English, this means that anyone with a Mac SE/30, IIsi, Ilicx, Ilii or Ilixf will have what appears to be an almost limitless amount of RAM available. In fact what happens is that the computer automatically 'switches' chunks of memory to and from the hard disk, to give the appearance of more RAM than you've actually got. Since MultiFinder will be standard in System 7 (there will be no option to work without it), virtual memory means that you will, in effect, be able to run as many different programs as you want (although there will be a finite limit, probably about 16Mb, to the amount of Virtual RAM available).

People with Mac IIs and Mac IIsis will have to splash out on an extra chip (called a PMMU, or Paged Memory Management Unit) before virtual memory is available to them. And anyone with a Mac Classic, Plus or SE won't be able to use virtual memory at all. Sorry.

Desk Accessories may be a thing of the past with System 7. There will be a folder inside your System Folder, called 'Apple menu' or something similar. Any application placed inside that folder will appear under the Apple menu. So, at the very least, utilities like *On Cue* will be redundant.

On-line help is a major innovation of the new System. When switched on, little 'speech bubbles' will appear by the side of menus and so on when you select them. The speech bubbles will contain brief notes telling you what the choice that you are about to select actually does ('Erase disk: this will obliterate whatever you put on the disk. Think twice before you use it, moron.' - well, that sort of thing, anyway). This type of 'context-sensitive help' is already becoming a standard feature in many programs - *Color MacCheese*, a nifty little 32-bit paint package, has a small window which is constantly full of advice which changes as you move the pointer around, for example - but the Apple method will mean that hopefully every program will now have efficient, on-line help. (If you use *Microsoft Word*, incidentally, try hitting Command-Question Mark; the cursor changes shape and the next time you click the mouse, a window appears with help on whatever you were doing when you clicked. That's what I mean by context-sensitive help.)

There will be many other fabby new features incorporated into System 7 when it finally arrives. One which won't be implemented until version 7.1 or so of the new System is 'hot links'. Essentially, this means that you can,

for example, use data from your spreadsheet to produce a graph in your graphics program. Then, if you change the data in your spreadsheet, the graph will automatically change. Smart or what? Sadly, it's been too much work to incorporate it into the first release of the System. But then, would life be worth living if you weren't waiting for Apple's latest innovation...?

NEXT WEEK

Next week, I'll be showing how to customise your menus and icons. Bored with a picture of the wastebasket? What about a picture of an IBM PC to act as your trashcan? Fed up with your Mac asking you if you're sure you want to throw away an application? I'll tell you how to stop it. Find your menu bar boring? Just wait...

If you want to do any or all of the aforementioned things, you are going to have to equip yourself with a copy of ResEdit 1.2 or 1.3. This is available from any decent public domain software library.

POSTCARD FROM AMERICA

And now, another postcard from America. This week David Morganstern reports on the presentations accompanying the launch of the new Macintoshes...

"Half the world saw, or had an opportunity to see, the Apple coming-out party for the new Macintosh models. The show included bits of the American ad campaign, which will consume half of a \$40 million worldwide budget. The flagship of the promotions is a jazzed professor speaking 'forcefully' to his young impressionable university class, each sitting in front of a IIsi - what school do they go to? If you don't see this one, count your blessings.

"One spot created for the Classic will never see the light of a cathode ray tube! The ad-that-never-was starts with a couple of thieves in a college computer lab on a security camera. On one side of the lab are Mac Classics, and on the other PC-type computers. The senior thief tells the journeyman, who's starting to take the larger PCs, 'Hey, no. Only these,' pointing to the Macs. The junior thief tells the boss that all computers are the same. He's scolded with, 'what are you, Phi Beta Kappa?'

"The camera pulls back and we see two uniformed securitymen watching the tape, as the Macs go out the door. One asks, 'why did they take only one kind of computer? That must be the most expensive!' The 'smart one' answers, 'That's what's so strange - they left the expensive computers.' The announcer pipes in with, 'There's only one disadvantage to a computer that people actually use. Everybody wants one.'

The ad ends with the security guy saying, 'what am I missing?'

Ian Wrigley and David Morganstern

PSI Paperback Software UK Limited lives. (Despite what you may have read.)

It's no real surprise that most reports of the conclusion to the long-running saga concerning the "look and feel" copyright lawsuit brought by Lotus Development Corporation of Boston, against Paperback Software International Inc., of Berkeley California have tended to emphasise the sensational, and avoid important details. New Computer Express was no exception. But by being incomplete, these reports have allowed a very misleading interpretation to be placed on the actual event.

The fact is that Paperback Software UK Limited has not been and is not involved in any way with the corporate and litigious affairs of Paperback Software International Inc., of Berkeley, California. Paperback Software UK Limited is an independent UK owned company that publishes, co-publishes and distributes a broad range of software, from a variety of sources. *VP-Planner* happens to be one of these titles.

Paperback Software UK Limited endorses the views expressed by Lotus, encouraging competition, creativity and innovation in software development. That's why Lotus developed 1-2-3 from the original concepts of Dan Bricklin's *VisiCalc* software, and *VP-Planner* built on the Lotus standard, but also included additional features that have subsequently been adopted by Lotus and others.

There has never been any question whatsoever that the code and programming of *VP-Planner* has been in any way copied or reverse engineered from the code of 1-2-3. We take strong exception to the innuendo in the use of the word "theft" in the press release issued by Lotus.

The issue for us - and you - should be that of the functionality and value of the software. This aspect has been a casualty of the war of litigation between Lotus Development and Paperback Software International, being far less interesting for bloodthirsty journalists, seeking to highlight the confrontational and melodramatic aspects of the case. And all the while Lotus has been busy teaching PSI a lesson in the economics of US litigation, MicroSoft with Excel, and Borland with Quattro, have been making considerable inroads into Lotus' dwindling market share. The user interface developed by 1-2-3 is a minor technical aspect of the software; but at one point in time, the encouragement offered by Lotus - and virtually demanded by journalists - to conform to what many described as the "industry standard" suddenly became an 'infringement of copyright'. It is the work of an afternoon for the developers to change it...

In fact, we were relieved to realize that the shackles of Lotus conformance, required by PSI for the US marketplace, had been cut

loose by the decision of PSI to submit to Lotus's demands, and return the exclusive rights to the 1-2-3 interface to Lotus.

But where does Digital Research now stand with the question of DR DOS and MSDOS? What does this mean for IBM and all those who chose to borrow the look and feel of the IBM PC? When proprietary environments like Windows and the Apple Mac interface positively make a virtue of their consistent look and feel, just who are we all to believe any more?

But there is one thing of which you can all be certain. Paperback Software UK Limited is most certainly not stopping selling superior spreadsheet (and other) software at prices that make large publishers, with large overheads and large expenses, wince. We have many innovative features in development that can be made simpler, faster and more intuitive by taking a more logical approach than slavishly following a 1-2-3-like interface.

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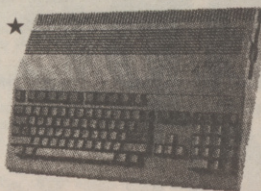
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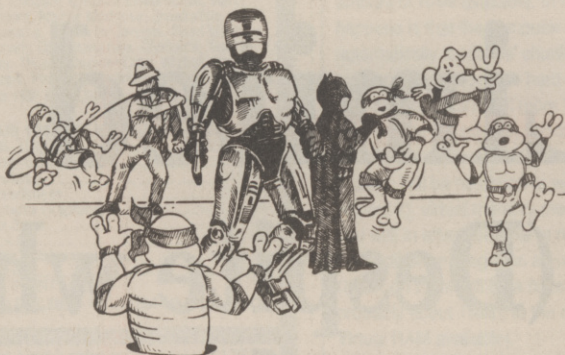
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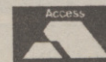
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* The Ferrari bit isn't strictly true. It isn't even slightly true. Actually, it's a lie. Sorry about the duff design, but we concentrate on quality games, not adverts.

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Want to see your name in print? Then write to *Centrefold*. This week's replies by Jeannette Brashier.

I really didn't know that people still spoke like that any more. In fact I have a feeling that you too are having a game with me. I am so sorry that I am not authorised to send off any prizes, Mr Smith has left the strictest orders with Julie Sub not to let anyone near the goodies. I have tried to get round her with an interesting lunchtime discussion of Z80 machine code, but so far no luck. Please be patient, Mr Smith should be back soon

CAPTION FULL STRENGTH

Ahhhgh pauvre, pauvre little thing. But what does this dodo think about computers? Do you know? Could you tell us? Why is she surrounded by letters and cut-outs of herself? What does it all mean? Please send your answers to Save the Rest of Us from Ending Up Like a Dodo Comp.

Jolly funny indeed

REFOLD

THE OUT OF TOWN TOP TEN

Birmingham – a city responsible for Duran Duran, Jasper Carrott and a couple of football teams it's better not to mention. But it does have some redeeming features. Within the Merry Hill Shopping Mall hides a gem of untold worth known as Comtazia, where a person who wished only to be known as Venita (but research shows her other name is Aspry) supplied us with this week's Top Tens:

TOP 10 16-BIT

- 1) Awesome – straight to the top from nowhere!
- 2) Captive – capturing the imagination of Brummies.
- 3) Indiana 500 – rip roaring race action.
- 4) Kick Off II – first of the sequels.
- 5) Rick Dangerous II – sequelitis continues.
- 6) Monty Python – great game, irritating tune.
- 7) TNT Compilation – exploding into the charts.
- 8) Wheels of Fire – racing games compilation.
- 9) Nitro – these Brummies like their motor racing.
- 10) F19 – not taking off too well in the Midlands.

TOP 10 8-BIT

- 1) Wheels of Fire – motor racing definitely rules.
- 2) Midnight Resistance – futuristic arcade conversion.
- 3) Ninja Remix – the last Ninja remixed by MC software
- 4) TNT Compilation – the charts answer to an EP.
- 5) Turrigan – silly, but fun.
- 6) World Cup Italia 90 – Out of season sport action.
- 7) Rick Dangerous II – saving the world from the Fat Man once more.
- 8) Shadow Warriors – slipping drastically from last week's pole position.
- 9) Robocop – metal mayhem.
- 10) Cricket Captain – more out of season sport action.

DESPATCHES

This week we bring you news from Maria Zelt, our lady at the End Macho Egoism in the Microchip Arena. Maria is currently living in Melbourne Australia.

Hello and welcome... and that's not funny!

Having lived in Australia for some two years I still find it hard to believe that such a young country should have such a traditionalist attitude to women. This combined with a software industry - which is equally young - is blazingly disheartening. I will give you some examples:

We will start off with a new book which has just been published to great acclaim. Called *The History of Australasian Computing*, the mere name is an insult. HiStory! HiStory! I ask you. They may as well just have called it *How Men Made Computers and Women Didn't*. Not only that, but both of the authors were male. I phoned one of them up for a comment and the following happened.

ME: Why didn't any women get the chance to write this book?
THEM: Well, we didn't actually know any women who wanted to join in with us. We got the commission and just thought, OK let's write the book. My wife's a policewoman and Dave's (the other one) is the boss of her own firm. Neither of them take much interest.

ME: Very easy, very slick. Why didn't you go out and find a



• Women burned their bras – men encouraged them – but not for the right reasons!

woman.

THEM: We should be so... no really, we have written before and we just thought...

ME: Thank you for nothing.

You see! You see!

Then there was this game which came out and was called *Alien Fiends Bashed to Death*. The idea is to run around a galaxy killing things, a classically male 'thing'. It clearly stated that on one of the 10 planets the alien monster was called, and I quote, "Nagazilla, she will rip your head off if you're not careful." Do you see, do you? That's it I'm off.

NEXT WEEK DESPATCHES COMES FROM BERN MILGROW THE MAN WHO WROTE HAMBURG STRIP POKER.

FROM THE ARCHIVE

Onwards and upwards has always been my motto, yet some people still appear to wish to look backwards. I stand by the Henry Ford - another great man - premise that "History is more or less bunk." But other people like to look back so here we go. This was what was in the news one year ago this week.

GAMES (if you're interested in that kind of thing)

Three games which went on to legendary status were newsworthy this week; they were: *Stunt Car Racer*, *Laser Squad* and *Sim City*. Not only was Christmas coming up, but so were the awards for best this, best that and best the other.

CHEAPEST PC

Another one of those cheap PCs was on sale by Evesham Micros (a firm which, with its excellent reputation should know better). This one was the Olivetti PC1. It cost a mere £299 and many people later commented that it was overpriced. It was a stripped-down version of Olivetti's high-end machines which had been launched 18 months previously.

VIRUS RESEARCH

IBM set up a virus research centre in New York. A quite superior idea from the big-hearted company. The centre was to be based at the Thomas J Watson Research Centre (not to be confused with the Thomas Watson who died while helping Christopher Marlow in a 1589 street fight). The bulk of the research was to concentrate on killing new viruses without affecting data.

FIRST WITH THE NEWS

New Computer Express broke the news of the new Commodore Amiga workstation. At the time we didn't know the name, which was later to be revealed as the A3000, but we did have the specs, the price and the release date.

CHRISTMAS SHORTAGES YET AGAIN

As the person who wrote the news at the time said "It's becoming something of an industry joke that, come early winter, the hardware manufacturers start warning everyone to rush out and buy their Chrimbo computers because otherwise the shops might run out. This is normally done with a leak to the trade press about shortages. Commodore isn't bothered with such tradition." It won't surprise any of you then to discover that news came to *Express* last week of... Commodore's hardware shortages for Christmas.

GIVE COMPUTERS TO 5-YEAR-OLDS

That was what a major report which was aimed at affecting the 'new' National Curriculum said. The idea was that the younger you could get children to learn about computers, the more they would learn; in effect computing would

A CENTREFOLD SPECIAL – SOFTWARE PIRACY THE CASE FOR THE DEFENCE

The case for the defence is brought to you by Michael Deacon of Mayes Rd, Felixstowe who was interviewed by Mr Smith last month.

Express: So why do you crack and pirate games

MD: Well, s'like this... too expensive to buy. Hruuup!... pardon.

Express: What kind of software do you pirate?

MD: Games really innit.

Express: Can you actually program?

MD: Been programming for years now,

really good at it.

Express: Why don't you write your own games then?

MD: Come off it. The big companies have got it all tied up with their own programmers, lackies really. They don't want us, they don't want real talent. Anyway it means getting up an' commuting with the rest of the sheep and me and my mates don't want all that garbage. We're free.

Express: Basically you can't be bothered to get up early enough to get the train?

MD: You trying to be funny or what pal?

Express: Why? What are you going to do

about it then you jumped-up, spotty little excuse for a human? You can't even go to the loo without help.

MD: Well just watch it that's all, yeah.

Express: Back to the subject in hand. Have you ever thought of setting up your own legal company instead of sponging off other people's ideas and work?

MD: No point is there? I mean...

Express: Oh I've had enough of this. Go away you insipid jerk and by the way we've given all your details to FAST... or have we?

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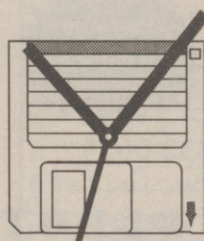
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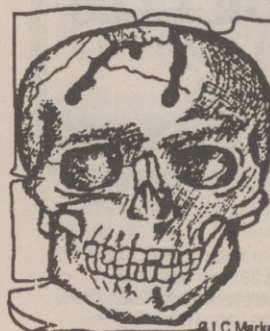
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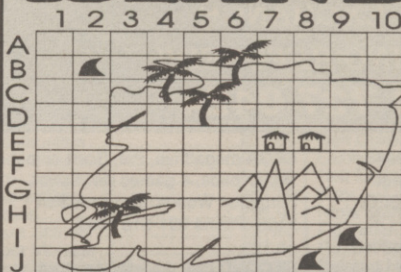
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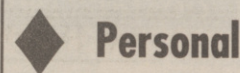
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Top 10 PD

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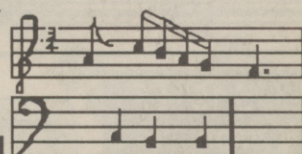
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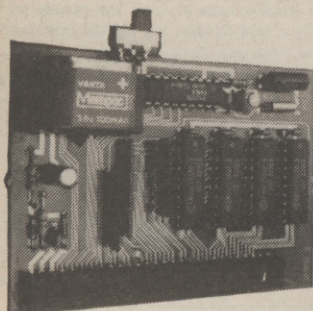
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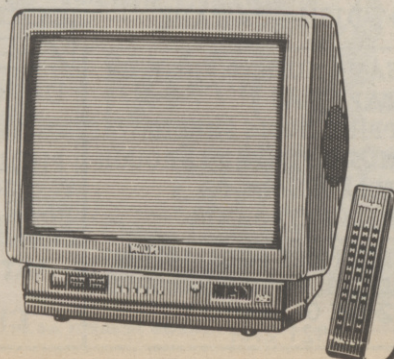
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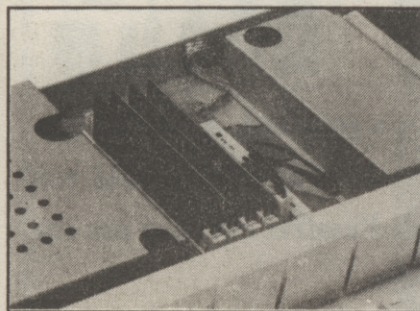
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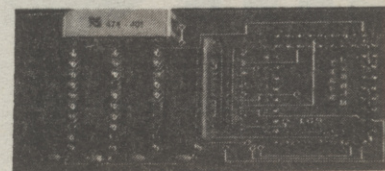
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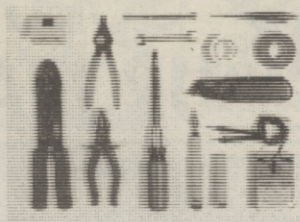
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CIRCUIT CITY



There's more to Circuit City than a few hours a week curled up with a warm iron. There's the vast enjoyment that you can get by constructing, fixing and using a project of your own making.

We regularly get letters that conform to the "I can't get the reverse-thrust logic array wurble fettler for my Cray 7. What can I do?" After you've tried in vain for several months to find the defunct user group, had no joy with the manufacturers and listened to the advice of the milkman ("You should have bought a Spectrum 3 like what I did, Guv") you may be feeling ready to quit.

The Express technical help team visited the All Formats Show on November 4 and found that we're not a nation of quitters. Out of 70 odd stands there were a good dozen and a half selling the elusive kit that we're all searching for and the wherewithall to weld it together.

THE TASK

We set ourselves four objectives

- 1) Build a PC from scratch for under £400 (inc. VAT).
- 2) Run to ground a couple of unusual boards that Circuit City Readers had said were no longer available.
- 3) Buy some useful bits and pieces for the bench.
- 4) Keep Steve Coulter out of the bar long enough to keep his speech comprehensible.

PC PROJECT

Someone had stuck cardboard notices up all over the hall with crudely drawn arrows pointing to 'PC-XTs under £300 including VAT'. We followed the arrows to a crowd willingly peeling off fivers for a basic PC at £299. Good value – but too easy for Circuit City.

A trestle table in block H strained under the weight of the innards of what looked to be several dozen disembowled PCs. Mother boards, disk drives, cards, controllers, all neatly priced and hopefully working.

An XT mother board at £70 looked promising so out came the meter, logic tester and can of Special Brew. No one seemed to mind the testing of these sometimes elderly components. As far as we could tell with the tools available, it was probably OK so taking the holiday money we counted out 14 fivers. A power

You have a bench, tools and the family's gone out. A perfect scenario for a session with the soldering iron. But what should you make? Would you believe a PC? Keith Pomfret checked out the All-Formats show, a wirehead's paradise.

supply was on the next trestle. It had a plate rating it as tough enough for an AT with a couple of hard drives so it joined the mother board in the "sorry dear, you didn't really want to go to Spain, did you?" stakes.

Disk drives proved easy. A 3.5 inch floppy, a 5.25 inch floppy and a 20Mb hard drive cost £20, £18 and £25 respectively. The necessary bits of cabling to con-

nect them all together were in the 10p bin and 50p bought enough for the PC and several other projects.

The All-Formats Computer Show takes place with the regularity of a matron fed on prunes at the Royal Horticultural Halls, Greycoat Street, Westminster, London. The next one is on Saturday December 15 from 10-5 and it costs a mere £3 to get in.

nect them all together were in the 10p bin and 50p bought enough for the PC and several other projects.

Memory chips to take the mother board to its maximum 640K were next. Buying memory cheaply proved difficult. There are more ways of skinning a cat however. A stand in the corner was selling boards from long defunct computers for £4. Each of these had 256K of socketed RAM. Three of these for a princely £12 and we'd got more than enough for the job and a couple of other jobs too. As a bonus we got several logic chips and all sorts of useful connectors. When stripped these boards will yield some useful oddments.

Next was a hard disk controller. At £20 we could have a choice of several and eventually £16 bought a serviceable unit. Expansion cards were there in plentiful supply. Serial, parallel, analogue, joystick and a modem card would almost fill the slots on the mother board and set us back a not extortionate £48. An EGA card at £12 was tempting and we shoehorned it into the last slot. £5 bought an elderly but serviceable keyboard. Various switches, fuses and screws were bought for £2 and all that was needed was somewhere to put it all.

A 'real IBM' case was £20, a PC joystick a fiver, and a mono monitor at £12.00 completed the purchases to bring in a three drive PC with all the necessary ports, the ability to be upgraded to colour EGA and an interesting assembly project for the future in Circuit City. The £269 total was good value for money and I always did prefer Morecambe to the Costa Brava.

If you're going to buy and build a PC in this way make sure that you know what you're buying (or take someone who does with you) or you could end up with a pile of junk. It's easy to be tempted by a 'bargain' but most of the boards and peripherals for sale at shows come without documentation or warranty. Be warned.

THE ELUSIVE BOARDS

A couple of Circuit City readers get slapped wrists for not following advice. They were advised to tootle on

down to the All-Formats show when they complained that they couldn't get: 1) A QL main board (the last one got stood on during an overhaul) and 2) A CRT and main board for the gone but not forgotten C64 portable.

1) The QL board was available on the EEC stand along with new QLs and every peripheral for the QL ever invented.

2) A complete C64 portable with disk drive, case and all its internals (it even worked when we plugged it in) was offered for a reasonable £50. The previous owner had even added a bespoke cassette interface.

BENCH BITS

An oscilloscope for £34. Bah, I was beaten to it by a minute. The various power supplies on show offered some interesting voltages and a new copyholder to replace the old one. (£5). The boxes of assorted connectors and leads proved to be an Aladdin's Cave, yielding a couple of carrier bags full of unusual connections and plugs for less than £5.

A strange shaped PC style case at £7 was the ideal receptacle for power supplies and test gear. Standing on its side like a demented tower system under the bench it will keep a lot of the humming boxes, curly wires and general clutter in one box.

CALLED TO THE BAR

As if in perfect empathy with us, the management of the Horticultural Halls decided that a bar and cafeteria wouldn't be a profitable proposition and kept them locked. Steve kept a watching vigil but alas, nought stronger than H₂O was to be had.

DANGER

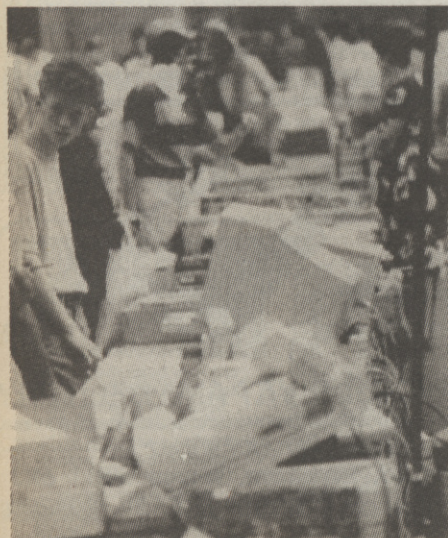
Mucking about with the insides of anything that is connected to the mains is the kind of thing that keeps undertakers in business.

Don't ever meddle with things you don't understand or you will surely end up damaged or dead. Unplug anything electrical before you open it and remember that monitors can still give you a nasty belt – even when they're not plugged in.

If you're going out intending to buy a computer in component form from shows and so on, get a receipt that shows the trader's name, address and phone number. You should always ask for a warranty too. You probably won't get one but there's no harm in trying.

Be clear about what you want and its exact specification. Make this plain to the vendor.

Don't buy anything unless you can see it working or you can easily test it. If you aren't sure of the technical specification of what you're buying take someone with you who is.



• Enough to get the Pomfret soldering iron in a state of flux – a few of the useful bits and pieces at the All-Format Show.

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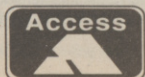
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Each disk in the series has a number of pieces of music. They are selected by means of the cursor keys, and are played by pressing return. When you get fed up with a particular jingle, a quick key-press is all it takes to get you back to the main menu.

Technically it's all very clever. Emulating through software what the Amiga does with extensive hardware support.

So, what do they sound like then? Well, that's for me to know and for you to go and away and find out. Let's just say that it should well and truly put a stop to all those louu mouthed, big-headed Amiga owners' digs.

There are 20 *Soundtracker* disks available at present, with another ten on the way within the next week or so. So really you're a little bit spoilt for choice, aren't you?

THE PD COLUMN

There's a wealth of free software out there which is yours for the price of a disk. Our PD man, Adam Waring, takes a look at what wonderful freebies are on offer this week...

PD NEWS

Mithrandir is a team of programmers devoted to producing public domain games for the Atari ST. It doesn't actually run a library, and won't copy disks for you, devoting its energies instead to making sure that all the games are top quality PD.

It's not just games though. Well, it is, but they hope to start producing utilities and miscellaneous programs.

I had a look at a couple of its offerings, *Merv the Mercenary* and *God!*, both platform adventures with lots of levels. Very good they were too. Keep up the good work lads!

It's interested in getting in touch with other PD programmers however, and would welcome any correspondence. It also offers the service of compiling STOS programs to those programmers who don't have a copy of the compiler

Mithrandir chills-out at 19 Speldhurst Close, Bromley, Kent BR2 9DT. Its programs are available from such libraries as Softville, PDQ Games and MT Software.

POSTMAN'S KNOCK

When you read about a wonderful piece of PD software, no doubt you want to get your hands on it straight away. The problem is, Mr Postman isn't always terribly efficient. Sometimes it can take over a week from sending off your order to receiving those bulging disks.

London-based ST fans now have the opportunity to buy their public domain software off-the-shelf, so to speak. Elmssoft PDS has opened a public domain library in the Canal Market, Camden Lock, Camden. The easiest way to get there is to take a tube to Camden Town station. From there it's just a short

walk. The entrance is at Haven Street. The market is open Saturday and Sundays from 9 am 'till 5 pm.

All disks bought at the market cost £3, irrespective of whether they are single or double sided. If you want to order through the mail, then it'll cost £1.75 a disk, dropping to £1 when you order ten or more. Elmssoft's address is Elmssoft PDS, PO Box 17, Loughton, Essex IG10 2EE.

3 Games from PH Software • Amiga • Amiganuts • Disk 706

PH Software, a German PD software producer, has compiled a collection of games that are available exclusively from Amiganuts. They're all of the puzzle variety, and jolly good fun they are too.

Marble Slide is an infuriating little beast of a game. It's a bit like one of those Victorian sliding puzzles. You

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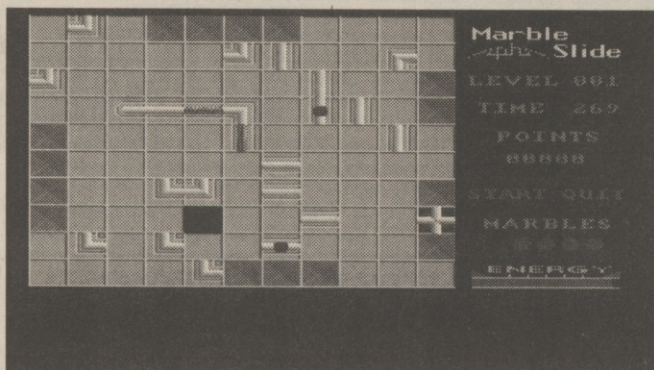
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• Slide a few marbles around. All at absolutely no expense whatsoever.

know, the ones where there is set of sliding tiles with one missing. You move the tiles into the gap and try to form a picture or get the letters into the right sequence.

The added twist with this game is that it's not pictures or letters that you have to sort into the right order. It's pipes. And rolling around in the pipes is a marble. It's your job to move the pipes so that they connect together, forming a path for the marble to move through.

The object is to roll it into a special target square whereby you win the game and move onto the next level. Of course it's easier said than done, and it's a constant battle to keep those tiles moving in time before the ball rolls off the end.

You have to move hundreds of the confounded things to keep ahead of the blinkin' ball. You can reverse the direc-

tion of the marble, but do it too many times and shatters.

The Turn gives you a set of Othello like pieces on a grid. The idea of the game is to match them to a pattern shown at the bottom of the screen. Click on a counter and all the surrounding ones flip over, thereby revealing the other face. The one you clicked on remains the same.

Matching the tiles up is bloody difficult. All sorts of complications ensue when you turn the tiles over. The ones that you don't want to change do, and the ones that you do want to change don't. You end up pulling the hair from your head. I'm now completely bald thanks to this game.

Tricky is a tricky little beggar. It's a little bit complicated to explain too.

There's this ball, see. You need to roll it over these symbols, which disappear. However, if the ball goes into a different symbol it stops, and you then have to make it roll over symbols of that kind. Arrows can be rotated to change the direction of the ball, and the idea is to try and take out as many like-tiles at the same time.

All games are well presented, with good quality graphics. They all get progressively more difficult as you advance through the levels.

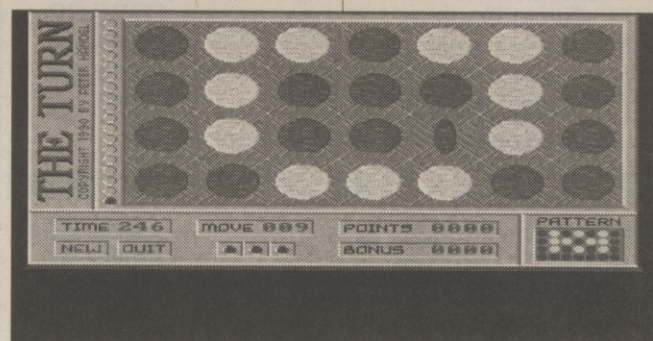
And if you should manage to complete any of the games they all come complete with a level editor. You can even design your own levels to impress your friends

So if you want something to challenge the grey cells, then this compilation could be just the thing. ■

Where to go

The Demo Club, 23 Alma Place, Spilsby, Lincs PE23 5LB. Telephone 0790 53741. The Demo Club is totally devoted to demos on the ST. It claims that it's the original demo-only library, and boast over 400 in the collection. Disks are £2.50 each, the price dropping to £2 when you order ten or more. Supply your own disk and it's £1.50.

Amiganuts United, 169 Dale Valley Road, Hollybrook, Southampton SO1 6QX. Telephone 0703 785680. Nuts about your Amiga? Then call Amiganuts - a library that caters for the Amiga, and the Amiga only. Got that? Disks start at £1.50.



• The Turn. Another wonderfully fun freebie.

Lorenzo's Domain Amiga P.D. & Shareware

A SMALL SELECTION FROM A GREAT COLLECTION

MUSIC

- 101: Definitive Docklands by H.C.C.: fantastic colour pictures and music
- 111: Rave Demo (1 meg) by H.C.C
- 118: Digital Concert 5: by Flash Productions
- 119: Derek & Clive Live: (2 disks): X-Rated: Hilarious digitised comedy.
- 126: Arnold Schwarzenegger. Total Remix. (2 Disks). Very funny.
- 130: Rebels Megablast. A collection of brilliant tunes.
- 132: Vision Music Disk 5. Very Good.
- 135: Pan Demo 3. 6 songs and a stunning animated play routine.
- 136: Digital Concert 6 by Flash Productions. The latest 8 minute mix.

DEMOS, INTROS & MEGADEMOS

- 207: 6 of the best including: Follow Me by Red Sector, Celtic, T.P.L. etc..
- 209: Scoopex: Mental Hangover
- 216: Another Lorenzo Compilation pack
- 217: Yet another Lorenzo Special Collection including Coma, Spring on a thing
- 221: Popeye meets the Beachboys: It's ravin mad pal.
- 222: BudBrain Mega Demo X (2 Disks)
- 228: Robocop demo.
- 239: Goldfire Megademo: New first demo from Goldfire. Excellent.
- 245: Vision Megademo 4. Many parts to this one, all excellent.
- 246: Armada Demo Compilation. Outstanding.

GRAPHICS PICCYS AND ANIMATION

- 306: Newtek Demo Reel 3 (1 Meg) (2 Disks)
- 309: Forgotten Realms Slideshow by Fraxion.
- 315: Miller Lite Advert.
- 400: Puggs in Space by Dionysus: Great anims and Brill music..Yeehaaa..

- 407: Walker 1 Animation (1 Meg). Been around for a while. A Classic.
- 408: Walker 2 Animation (1 Meg). Yep! You got it another Classic.
- 417: Lotus & Unicycle Animation: (1 Meg): You'll like this one.
- 420: Fractal Flight. (1 Meg): Demo of Fractal Flight by Hypercube. Wow!!
- 425: Raiders of the Lost Arc. (1 Meg). Best sequence from the film.
- 428: Elgato & Red Baron. 2 old but excellent animations. Check them out.

GENERAL

- 500: Jazzbench: Jazz up your workbench
- 501: Fonts Disk: Loads of fonts
- 502: Wordprocessor
- 503: Spreadsheet.
- 504: Database.
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- 512: Complete C Manual: (2 Disks): 200 Page manual with 70 example progs.
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- 702: Star Trek 3: (2 Disks): absolutely fantastic....
- 707: Paranoid: Arkanoid like game with its own screen editor.
- 709: Pseudo Cop. Woooooooow!! Absolutely brill.
- 710: Flaschbier. A very good Boulderdash look alike.

This is just a list for quick reference, for a full description of titles please look at the catalogue disk. The full Mega-Magazine/ Catalogue Disk should be ready very soon.

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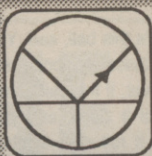
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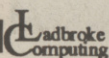
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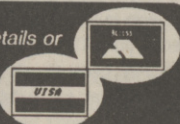
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TECH TIPS



Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Keith Pomfret's Tech Tips and we'll soon see you right. Send your sorry stories to Tech Tips, Beauford Place, 30 Monmouth Street, Bath BA1 2BW.

■ HELP! Modem muddle

Am I wasting my time buying a modem?

I own an Atari 800XL to which I have fitted an internal RS232 interface. I was thinking of buying a modem as I have the appropriate software - *MiniOffice II* on PD. I have been told that I can only access Atari-based BBS or Telecom Microlink. Is this correct?

Nick Ashby, NW London

Erm, Telecom doesn't run Microlink, Telecom runs Micronet. Database runs Microlink. The simple answer is that if you have software that is capable of accessing Microlink (like the *Mini Office* comms module), you can access most of the 300 or so scrolling format BBSs in the UK and the 12,000 around the globe. I couldn't run to ground any specific software that will let you access the viewdata BBSs but I'm informed by knowledgeable sources that it exists "somewhere in the public domain.". Until you find the elusive Teletext software you'll have to make do with the 12,300 scrolling BBSs.

A Viewdata BBS is one where the text is displayed in a teletext format (Like Ceefax or Oracle).

A scrolling BBS puts the text on the screen in front of you in a text format rather like the output of a word processor. As the screen fills it 'scrolls' upward and out of vision.

■ HELP! Apple Max

I was recently given an Apple Lisa 2/10 and the printer to go with it - what I suspect to be the original ImageWriter II.

As well as the hardware I was given the Apple Lisa Office 7/7 software. This comprises the most useful applications - word processor, CAD, all that sort of thing. However at school I use Macintosh Plus machines for producing the school magazine and was a little miffed to discover that a Mac emulator and the screen modification kit it needs to make it work cost well over £200. So as I am only in the third year, the human species would be no more by the time I had saved this amount.

Can you or anybody else tell me where I can get some more software? A proper paint program, games, a real

■ HELP! Poor student

Following a business course I have become a post-graduate student at Lancaster University. At the University I tend to use Microsoft Works 2 on Opus PCV 286 IBM compatibles with 30Mb hard drives.

Do you or any of your readers know of a software based emulator which I could use on my one meg Amiga 500 so that I can use the Microsoft software on the Amiga for editing course work? The only solution I have been offered so far is to shell out £300 plus on a hardware based system.

David J Robinson, Morecambe

I'm afraid that you'll have to go down to the Plough and drown your sorrows with the help of Doctor Boddington. The only software PC emulator for the Amiga that even attempted to work was Transformer. I blew the dust off the office copy and tried to fire up Microsoft Word, Microsoft Works, Protext, and Locoscript PC. It wouldn't run any of them properly. Like most software emulators it is pure undiluted crap.

If you aren't able to prise the £300 or so for a hardware solution from your grant (or do they call them loans nowadays?), try using a utility like Cross DOS to allow your Amiga to read the data from a PC disk (it will have to be a 720K 3.5 inch disk).

database, shareware, anything? I will cough up if anyone can supply the goods.

David Cochrane, Glasgow

The clever people at Mac Solutions in the frozen wastelands of West Yorkshire offer a Lisa that will run some Mac software for a very reasonable £250. As well as being able to answer all the odd questions about Macs and Lisas that make an Apple Centre curl its lip, they should be able to help you with some techie twidget to breath life into the lovely Lisa. For those owners of Mac pluses (or any other Mac for that matter) who fancy a little bit of colour in their lives, Mac Solutions does a rather splendid box of tricks that plugs into the SCSI port on the back of your Mac and allows you to send the video output to a colour monitor. Mac Solutions is on 0535 690001

If most of your work is done on a word processor, you should be able to import document files from Works into an Amiga word processor. Protext is a good choice as it has a convert program included that does a good job of handling unknown formats. For other applications you'll have to shop around. You could start at Castle Computers in Gage Street, Lancaster. They have a fine reputation for service as well as supply.

■ HELP! EPROM Toaster

I hope that you can help me with the following problems:

1) Where can I obtain an EPROM Programmer suitable for either the Amiga 2000 or Atari ST? I wish to 'blow' my own programs on to EPROM to use with the Atari. Also, is it possible to obtain the plastic cases and circuit boards on which the EPROM chip is mounted to insert it into the cartridge port?

2) I recently took advantage of Commodore's A500 to 2000 upgrade offer. As a result I now have a 20 Meg Triangle Turbo 3 hard disk drive spare. This has a SCSI port on the back allowing other drives to be added. As my A2000 has a 40 Meg hard disk already fitted there is a SCSI port attached to this. Is it possible to use the A2000 to control my Triangle drive and use it as a second hard disk? If so, what must I do and where might I purchase a suitable SCSI lead?

Stuart Robertson, Aberdeen

There are two kinds of EPROM programmer, dedicated and stand alone. The dedicated one plugs into a specific computer and works from on-board software. This can be an easier and more elegant solution but has the disadvantage that if you change to another computer, you'll need to change programmers.

The other kind stands alone and connects to the computer via the RS232 (serial) port. This is a better bet in the long run because although you may have to hunt for suitable software to drive it, you won't have to replace the hardware.

A good jumping-off point for this sort of hardware is Maplin on 0702 554161. If you're intending to develop programs to run on EPROM you'll need an eraser as well (it never works first time.) Alternatively, it's possible to use RAM

chips with battery back up to emulate EPROMs during development.

The program is loaded into the RAM chip and the write line is disabled. Unless power to the chip is lost, it will behave as an EPROM. because it's easier to clear and write to RAM, this is a necessary piece of kit for an EPROM developer.

As for the plastic boxes etc, you could try one of the companies selling software in cartridge form or one of the large suppliers such as Datal.

We couldn't get the Commodore SCSI interface to behave in a true SCSI manner so I'm afraid you're out of luck.

■ HELP! Apricot Surgery

Could you please tell me if it is possible to replace the mother board of an Apricot XI (an MS-DOS computer that is not IBM compatible), with a mother board of a 80286 at a compatible PC or even an 8088/8086 XT compatible.

Any help you can offer in converting the Apricot to a PC would be greatly appreciated.

Stephan Bateman, Cheshire

Using a sharp knife, I skinned a couple of handy Apricots (X1 and F1) and I'm afraid that the prognosis isn't good. The old F1 couldn't even be upgraded to a Sinclair C5, never mind a PC. The X1 that you refer to is in the realms of "it might work if I could persuade this bit to interface with that bit" etc.

The X1 is a good computer and there's still a wealth of early MS/DOS software that will work on it. If you must have a PC, buy one - it's quite possible to get a build-it-yourself PC clone for less than the price of an expensive 80286 mother board.

■ HELP! Code quiz

I refer to the letter on Codes and Cyphers from Malcolm Jagger of London in this column (Express 102).

I would be most grateful if you would pass on my name and address to Mr Jagger as I have a great interest in this subject, especially with reference to computerised applications of cyphers.

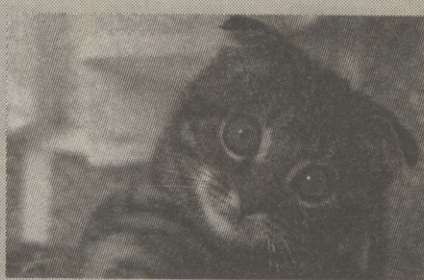
R Whitrow, Neath, West Glamorgan

Mr Jagger didn't give us his full address and you haven't given us permission to

■ HELP! Catch it

Please could you show the laser, weather satellite receiver, and geiger counter in more detail in your next issues of *NCE*.

I need the laser to blow away next door's cat because it keeps shitting in our garden. A Reading, London



• The Cohamp industrial pulse laser even eliminates cats. make a flea sing an octave higher.

The gear that you need for disposal of the errant feline is a 15kW Cohamp industrial pulse laser. This beast is guaranteed to dispose of lives in batches of nine.

You'll need to get the nice man from the electricity board to organise you some powerful three phase electrictrickery though. Your domestic 240v single phase wouldn't even warm the Cohamp's lamp up, never mind fry the puss.

The nice chaps at Maplin have promised to provide various projects for Circuit City but I'm afraid kitty's safe for now. The laser described in the Maplin Catalogue would barely

print yours. But if Mr Jagger and all the other people interested in computer coding and ciphers would like to write to Tech Tips we'll see if we can't help you all get together and maybe have a convention in MKY TFE TJKAQ BHUI

● For those with nowt to do for a couple of hours, there's a crisp £20 note for the first correct solution to the following on a postcard.

PTNEG WMTFK BLXOTR BLAAQ
PJNIT BKT XO DOBKE JSITM BKDSM
FDBLX

■ HELP! Faster PC

I have an Amstrad PC2086 with a hardcard, the Sound Blaster and two games, *Silent Service II* and *Midwinter* - mainly for their great use of VGA and game play. All I am missing from this great set up is speed. Is there any way that I can make the machine go a bit faster (like the 80286 processor) and without overheating the existing chips? Please could you keep the price down and the size small because I am not made of money and don't have much room for large expansion cards.

Is it possible to use PCW programs if I get a CP/M 86 operating system?

Richard Blakeley, Portsmouth

The 2086 cannot support the 80286 processor or for that matter any add-on mother board with a faster processor. For mathematically intensive tasks such as multiple calculation spreadsheets, a math co-processor may help.

If you are having loading speed problems it could be that your hard disk data is fragmented. Any computer software dealer worth using will direct you to a utility that repacks the hard drive to make data access quicker.

The CPM/86 system is a CP/M lookalike designed for existing CP/M users upgrading to 16-bit machines who wanted to stay with a familiar operating system rather than change to MS/DOS. It looks like CP/M, works like CP/M but is totally incompatible with the original system that was designed to run on 8080 based 8-bit machines. Some people still consider that MS/DOS was a bad copy of a much more elegant system (CP/M)

■ HELP! Hitachi MBE

I have a Hitachi MBE-16002 in standard trim. It is only 128K RAM and of course it is not IBM compatible, nor able to run such programs as *Balcony* or *Draft Choice*.

- 1) Can I make it IBM compatible?
- 2) Where can I get increased memory?
- 3) What is it compatible with?
- 4) Should I put it on the tip?

Adrian Kendrick, Alcester, Works

- 1) No
- 2) The Chip Shop (061 476 3070) but check that there are sockets to put extra RAM into.
- 3) Another MBE-16002
- 4) No, donate it to Tech Tips (he said, rubbing his soldering iron with glee).

■ HELP! Not enough info

A Commodore Amiga has recently entered our household and we already have an old Model DP-9501 printer. Is there any way I can make up a lead to connect the two together and use the printer to print graphics from *Deluxe Paint II* (which I have) or text from any word processor packages (which I would buy)? If so, how? I have no manual for the printer.

Niall McCrea, Co. Antrim

The Amiga has a standard parallel printer port and the Extras disk that comes with current versions of the machine (Workbench 1.3 and Workbench 2.0) contains enough printer drivers to produce hard copy from most printers. The DP-9501 is a new one on us and we cannot find any manuals for it either so, as ever, if any Tech Tipper can supply the details...

In order to help anyone with printers that aren't common, I need the following information: What machine has it worked with? What sort of connector has it? What sort of printer is it (dot matrix, bubble jet, laser, faisyWheel, LCD, plotter etc)? Are there any visible clues on it (signs/notices etc)? Are there any DIP switches or controls to adjust? With this sort of information it may be possible to work out what it is and how to make it work.

To answer your question about word processors, it has to be *Protext* from Amor. This is the best word processor available for the Amiga. The current version (V5) allows you to do everything you could wish for while remaining simple to use.

■ HELP! Gauntlet's down

I am planning to buy either an Amiga 500 or a 520STE. I don't know which one to buy. Which is the better machine overall and which one has the better graphics?

Adam, Hampshire

I'll have to run the risk of being branded an Amigaphile again but in my opinion, the Amiga is the best buy in terms of Software, graphics and compatibility. Both are fine machines but the STE arrived too late in the game. If you aspire to a really nice machine and you are prepared to put up with a smaller software base, you could always buy the Acorn Archimedes. (Lovely piece of kit but too few users and programs).

■ TIP! What does it mean

From week to week letters arrive asking the meaning of various computing terms. Rather than take up space with each letter, I've accumulated a few of the questions. Here are a few with appropriate answers.

● Does kilo mean 1,000? It always did when I was at school.

In computing terms kilo means 2 to the power of 10. This is 1,024. Thus mega means 1,058,576 and not a million.

● What does mother board mean?

The mother board is the main printed circuit board of a computer that carries all the main components.

● What is a font (or fount)?

A font is the set of alpha-numeric and punctuation characters of a particular typeface and size. For instance this answer is printed using 10pt Helvetica.

● What is DTP?

Desktop publishing. A program running on a computer allows the layout of text, graphics and illustration on screen. The output of a DTP package produces professional looking documents with illustrations. *Express* is produced using the Quark Xpress program running on Apple Macintoshes, output to a Linotronic.

DTP packages can cost from £50 to around £2,000. The price generally reflects the quality, although one or two budget DTP programs have produced quite stunning results.

● What is a benchmark? (An album by the Carpenters, perhaps!)

A benchmark is a program that is used to compare performance of different sorts of computers. For example, a benchmark might

■ HELP! Gud spela kneaded

I yam despurittly seaking a speeling checker tha tis come pat a bull with my Microsoft Write Atari ST wurd processin programm, preferably one with a thiswalrus if one exists.

If you have the nessacerieessery then pleeze print the information without delay. Addresses and prices would be a bonus. Please don't tell me to purchase a new word processor as I don't have the red-dies.

Ewan MacRae, Invergordon, Scotland

Wee lukked an lukked an lukked and fownd lodes ov em witch iz wye the spelling of this answer has improved.

Most of the available spelling checkers for the Atari ST stand alone and work on a document file separately from the Word Processor.

As well as commercially available packages, there are several in the Public Domain. Any ST PD library should be able to recommend one to you for a couple of quid.

measure the access time of a hard disk drive, the speed of a processor, the time that it took a computer to perform a calculation several thousand times or one of many standard benchmarks.

From a standard datum point the benchmark tests will tell you how much faster, slower, efficient or inefficient the computer on test is.

In a multi machine test, comparisons of benchmark performances can give a potential buyer a good idea which machine suits their purpose best

● What do the initials CGA, EGA, VGA and PGA stand for.

The first three are easy. CGA is colour graphics adapter. EGA is enhanced graphics adapter. VGA stands for video graphics array.

PGA took a bit of thinking about. The *Express* office putting team solved that one. It stands for Professional Golfer's Association.

● What does BIOS mean?

The BIOS is the Basic Input and Output System and is the interface between the inputs, outputs and interfaces in hardware with the operating system of the computer.

● We've heard of hardware, software and firmware, but recently an ICL engineer said that the problem was 'caused by faulty liveware that needed replacing' as it was obsolete. What is liveware?

I'd biff the engineer if I were you. Liveware is an uncomplimentary term used by wireheads and engineers to describe users.

● What is octal?

A numeric system in base 8. It uses the digits 0-7.

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SIERRA ONLINE GETS ON-LINE

Word is that Sierra Online is working on the next generation of software for the Atari ST. According to ST users in the Los Angeles area, around 1,000 users of the Atari ST have been signed up to take part in multi-user beta tests of multi-player technology versions of Sierra's existing, and future, games for the Atari ST.

No info officially from Sierra Online, nor the users, all of whom have signed mandatory non-disclosure agreements.



• Leisure Suit Larry, on-line from Sierra?

MEGA STE SERIES AT COMDEX FALL

Comdex is coming (in case you hadn't noticed). Next week sees the annual roll-out of new machines from 1,800-plus computer vendors who will flock to Las Vegas to unveil a host of new machines.

Amongst them will be the Atari crew, which this year unveils the Mega STe series. Yup, it's official. The machines are based around a 16MHz microprocessor (I'm presuming also that this is a 68020 cpu) and feature a VME bus as standard.

Another interesting feature of the machine is that it comes in a TT-style

case, and does away with those nasty metal shields that Atari and Commodore has had to use to comply with FCC regulations regarding RF emissions in the US. In place of the metal shields, says the *ST Report* newsletter, is a spray-on metallic paint. The same paint system, it seems, as that found in the Atari Lynx. As well as looking a lot better, the spray-on metal paint is reported to cost a lot less than the old-style metal shields.

And what about the pricing? Well, no reports as yet, but I hear on the Usenet grapevine that, since the machines will replace the existing Mega ST series, pricing is expected to be 'just right.' Sounds nice, whatever that is - watch this space!

Also expected to wow 'em at Comdex is a range of Viking Gold monitors from Moniterm, designed for use with the Atari TT and STe series, as well as the new budget Apple Macs and later PCs. Pricing, once again, is unavailable at press time

GENIE AND COMPUSERVE GET FASTER

Genie and Compuserve, the two largest on-line systems in the US, will shortly announce asynchronous access to their networks - initially in the US - at 9,600 bps. The move is important, since it allows high-speed modem users to hop on-line and download what they need in minutes, rather than wait for their modems to chug through.

Pricing on Genie's access ports has yet to be confirmed, while Compuserve will surcharge 9,600 bps modem users by a relatively lightweight \$10 an hour.

Both networks are expected to improved their UK dial-up ports to 9,600

bps inter-working early next year. That's good news for die-hards who, like me, download all the latest PD and shareware software from the on-line systems in exchange for a few dollars on their credit cards.

GRIBNIF DOES NEODESK DEAL WITH ATARI CANADA

In a deal that may just be a test for the US and European markets, Atari Canada has signed with Gribnif - producers of the excellent *Neodesk* desktop package for the ST - to bundle *Neodesk 3.0* with all new STs sold between now and the end of the year.

The deal, which applies solely to Canada, is being welcomed by Atari Canada's dealers and users. Gribnif of Hadley in Massachusetts is over the moon as well. "We're very excited about this agreement. We believe that a computer's user interface is an excellent demonstrator of its power and capability. *Neodesk 3* pushes the Atari to its limit and demonstrates what many have known all along - that the Atari (ST) is as good or better than anything else on the market today," said Rick Flashman, the company's president.

MULTI-TASKING ON THE ST - PART 266

By now, ST user's eyes will be glazing over at the mention of a multi-tasking package for their machines. Atari's efforts with a package called *Midi-tasking* - software that reportedly comes bundled with the Stacy ST laptop - have gone quiet, while Amiga owners crow over what their machines can do.

Sliccware aims to change all that. The US company plans to release *Slicctop*, a true multi-tasking package for the ST before the end of the year. Also on the cards for an early '91 launch is *Sliccdos*, which is a file management system for the ST.

The difference between *Slicctop* and other multi-taskers for the ST, says Randy Foster, *Sliccware*'s president, is that *Slicctop* is priority-aware. If a program requires immediate access to the ST's microprocessor and memory, *Slicctop* gives it to the program for as long as required, then switches back to the multi-tasking environment. Another

feature of *Slicctop* is that the package is modular - so chunks can be saved to disk when large programs are loaded, then moved back into RAM when the large program is flipped into the background.

So far, the elusive Mr Foster has left messages about *Sliccware*'s plans on several US on-line systems, but without his address or phone number. ST users are reported to be 'very' interested in what his company is up to. Watch this space.

STACY GETS A NEW CASE

Those ST laptop owners lucky enough to actually own one of these nice machines will no doubt be rather pleased to hear that Multibyte, a company based in Sterling in Virginia, has released Casey, a modular casing system for the Stacy laptop family.

Casey doesn't come cheap, starting at \$135 for the junior edition, rising to \$368 for the full-blown system with room for extra ni-cad battery packs, which the company is selling for \$188 (external) and \$198 (internal). The battery packs are 4.5 A/hour jobs, so are no lightweight units, I hear.

One-off ex-stock orders for Casey and Casey Junior are supplied in Stacy grey, light grey or navy blue. The company will also supply a wide range of colours for multiple-case orders.

Contact: Multibyte Inc., 213 N Lincoln Avenue, Sterling, Virginia, VA 22170, US.

ATARI US SOLVES THE STE DMA PROBLEM

Atari US has, I hear, solved some of the incompatibility problems of the STe series when running ST software. Unlike Atari US, which encouraged early users of the STe on this side of the Atlantic to run an operating patch, Atari US has tackled the problem head-on by allowing users to exchange their old STe machine for new ones by mail order.

According to the Atari User Association (AUA), around 10 per cent of ST owners are affected by the DMA chip problem, hence its public-spirited decision to allow users to upgrade to newer machines. Hats off to Atari US!

View Sort Options

Set Preferences:		
Icon Dragging Mode:	Copy	Move Ask
Confirm Copies/Moves:	Yes	No
Confirm Deletes:	Yes	No
Confirm Overwrites:	Yes	No
Status Displays:	Yes	No
Pause After TOS Apps:	Yes	No
Unload for Execute:	Yes	No
Report Status #'s:	All	< 0 None
Quit Neodesk Alert:	Yes	No
Maximum Items per Folder: 103		
.INF files...	Paths...	Extensions...
Accessories...	Reload NEODESKM.INF	
Done! Cancel		

• Neodesk. New Canadian Atari buyers will get one free.

So here we are, The *Express* Questionnaire. To make it worth your while to use a stamp we are giving away five free subscriptions to the readers who come up with the best and most original idea for an *Express* feature. But that's not all; the winners of the *Express* subscriptions also win a year's copies of the *Future* magazine of their choice — select from *Amiga Format*, *ST Format*, *PC Plus*, *Commodore Format*, *Your Sinclair*, *S* and *Amstrad Action*.

To have a chance of winning you'll need to get your questionnaire back to us by November 23. Send it in an envelope marked 'Express Questionnaire' to *New Computer Express*, 30 Monmouth Street, Bath, Avon BA1 2BW.

GETTING TO KNOW YOU

SECTION ONE: HARDWARE

What machine do you use the most at home?

- Amiga 500 ☐
 Other Amiga ☐
 ST ☐
 STE ☐
 Desktop PC ☐
 Laptop PC ☐
 Archimedes ☐
 CPC ☐
 Spectrum ☐
 C64 ☐
 Console ☐
 Macintosh ☐

Other (specify).....

What machine do you use the most at work/college?

- Amiga 500 ☐
 Other Amiga ☐
 ST ☐
 STE ☐
 Desktop PC ☐
 Laptop PC ☐
 Archimedes ☐
 CPC ☐
 Spectrum ☐
 C64 ☐
 Macintosh ☐
 Mini/mainframe ☐

Other (specify).....

What other machines do you have at home?

- Amiga 500 ☐
 Other Amiga ☐
 ST ☐
 STE ☐
 Desktop PC ☐
 Laptop PC ☐
 Archimedes ☐
 CPC ☐
 Spectrum ☐
 C64 ☐
 Macintosh ☐
 MSX ☐
 BBC Micro ☐
 PCW ☐
 Atari 8-bit ☐
 Console ☐

Other (specify).....

What other machines do you use at work/college?

- Amiga 500 ☐
 Other Amiga ☐
 ST ☐
 STE ☐

Here at *Express* we thought it was time we got to know you better, so we could give you more of what you want and less of what you hate to read. Plus, if you co-operate, you stand the chance of getting it all for nothing!

- Desktop PC ☐
 Laptop PC ☐
 Archimedes ☐
 CPC ☐
 Spectrum ☐
 C64 ☐
 Macintosh ☐
 Mini/mainframe ☐

Other (specify).....

How long have you owned your computer?

- Less than three months ☐
 Three months to a year ☐
 One to three years ☐
 Over 3 years ☐

What peripherals do you own?

- Monitor ☐
 Hard disk ☐
 Extra floppy drive ☐
 Modem ☐
 Printer ☐
 Memory expansion ☐
 Scanner/digitiser ☐
 Sampler/MIDI ☐
 Multiface/Action Replay ☐
 Joystick ☐

What peripherals do you intend to buy in the next year?

- Monitor ☐
 Hard disk ☐
 Extra floppy drive ☐
 Modem ☐
 Printer ☐
 Memory expansion ☐
 Scanner/digitiser ☐
 Sampler/MIDI ☐
 Multiface/Action Replay ☐
 Joystick ☐

How much did you spend on hardware last year/last two months?

- | | Two months | Year |
|---------------|--------------------------|--------------------------|
| Less than £50 | ☐ | ☐ |
| £50-£150 | ☐ | ☐ |
| £150-£300 | ☐ | ☐ |
| Over £300 | ☐ | ☐ |

How often do you buy goods mail order?
 Regularly ☐

- Sometimes ☐
 Never ☐

How many times have you bought through *Express* advertisements?

How do you buy your hardware? (tick all used in the last year)

- Independent retailer ☐
 High Street store (Dixons etc) ☐
 Mail Order ☐
 Auctions ☐
 Classified advertisements ☐

How much do you expect to spend next year/next two months?

- | | Two months | Year |
|---------------|--------------------------|--------------------------|
| Less than £50 | ☐ | ☐ |
| £50-£150 | ☐ | ☐ |
| £150-£300 | ☐ | ☐ |
| Over £300 | ☐ | ☐ |

Are you responsible for computer buying decisions at work?

- Yes ☐
 No ☐

Do you intend to buy a new computer in the next year? If so, what?

- No computer ☐
 Amiga 500 ☐
 Other Amiga ☐
 ST ☐
 STE ☐
 Desktop PC ☐
 Laptop PC ☐
 Archimedes ☐
 CPC ☐
 Spectrum ☐
 C64 ☐
 Macintosh ☐
 Console ☐

Other (specify).....

In an ideal world, which of these computers would you most like to own?

- Amiga 500 ☐
 Other Amiga ☐
 ST ☐

- STE ☐
 Desktop PC ☐
 Laptop PC ☐
 Archimedes ☐
 CPC ☐
 Spectrum ☐
 C64 ☐
 Macintosh ☐
 NeXT ☐

Other (specify).....

SECTION TWO: SOFTWARE

What do you use your computer for at home?

- | | Main use | Sometimes |
|----------------------|--------------------------|--------------------------|
| Games | ☐ | ☐ |
| Word processing | ☐ | ☐ |
| Spreadsheet/accounts | ☐ | ☐ |
| DTP | ☐ | ☐ |
| Graphics | ☐ | ☐ |
| Music | ☐ | ☐ |
| Education | ☐ | ☐ |
| Programming | ☐ | ☐ |
| Comms | ☐ | ☐ |

What do you mainly use your computer for at work/college?

- | | Main use | Sometimes |
|----------------------|--------------------------|--------------------------|
| Games | ☐ | ☐ |
| Word processing | ☐ | ☐ |
| Spreadsheet/accounts | ☐ | ☐ |
| DTP | ☐ | ☐ |
| Graphics | ☐ | ☐ |
| Music | ☐ | ☐ |
| Education | ☐ | ☐ |
| Programming | ☐ | ☐ |
| Comms | ☐ | ☐ |

How much have you spent on games in the last year/last two months?

- | | Two months | Year |
|---------------|--------------------------|--------------------------|
| Less than £50 | ☐ | ☐ |
| £50-£150 | ☐ | ☐ |
| £150-£300 | ☐ | ☐ |
| Over £300 | ☐ | ☐ |

How do you buy your games? (tick all used in the last year)

- Independent retailer ☐
 High Street store (Dixons etc) ☐
 Mail Order ☐
 Dodgy street markets ☐
 Classified advertisements ☐

How much do you expect to spend next year/next two months on 'serious' software?

- | | Two months | Year |
|---------------|--------------------------|--------------------------|
| Less than £50 | ☐ | ☐ |
| £50-£150 | ☐ | ☐ |
| £150-£300 | ☐ | ☐ |
| Over £300 | ☐ | ☐ |

How do you buy your 'serious' software? (tick all used in the last year)

- Independent retailer ☐
 High Street store (Dixons etc) ☐
 Mail Order ☐
 Classified advertisements ☐

Do you use PD libraries?

- Yes ☐
 No ☐

SECTION THREE: MAGAZINES

How long have you been reading NCE?

- This is the first issue bought ☐
 A few months ☐
 A year or so ☐
 Since the beginning ☐

How regularly do you buy NCE?

- Subscriber ☐
 Every week ☐
 Two or three times a month ☐
 Once a month ☐
 Occasionally ☐

What was your favourite article in this issue?

Rate the following sections of Express out of 10

- News ☐
 FrontEnd ☐
 The Week in View ☐
 Hardware reviews ☐
 Software reviews ☐
 Feature articles ☐
 Games Week ☐
 Competitions ☐
 Machine-specific columns ☐
 Express mail ☐
 Centrefold ☐
 Programming ☐
 Circuit City ☐
 Tech Tips ☐
 PD Column ☐
 Console Zone ☐
 Whole Wired World ☐
 Express On-line ☐
 Reader advertisements ☐
 Recruitment advertisements ☐

Which sections would you like to see more or less of?

- | | More | Less |
|----------------------------|--------------------------|--------------------------|
| News | ☐ | ☐ |
| FrontEnd | ☐ | ☐ |
| The Week in View | ☐ | ☐ |
| Hardware reviews | ☐ | ☐ |
| Software reviews | ☐ | ☐ |
| Feature articles | ☐ | ☐ |
| Games Week | ☐ | ☐ |
| Competitions | ☐ | ☐ |
| Machine-specific columns | ☐ | ☐ |
| Express mail | ☐ | ☐ |
| Centrefold | ☐ | ☐ |
| Circuit City | ☐ | ☐ |
| Tech Tips | ☐ | ☐ |
| Programming | ☐ | ☐ |
| PD Column | ☐ | ☐ |
| Console Zone | ☐ | ☐ |
| Whole Wired World | ☐ | ☐ |
| Express On-line | ☐ | ☐ |
| Reader advertisements | ☐ | ☐ |
| Recruitment advertisements | ☐ | ☐ |

What other magazines do you read apart from Express?

- Amiga Format ☐
 ST Format ☐
 PC Plus ☐
 Amstrad Action ☐
 Commodore Format ☐
 Your Sinclair ☐
 ACE ☐

- The One ☐
 Zero ☐
 Raze ☐
 Personal Computer World ☐
 Byte ☐
 What Personal Computer? ☐
 Popular Computing Weekly (sorry, bad joke)

What do you like about them compared to Express?

SECTION FOUR: ABOUT YOU

All personal details will be treated in confidence.

Are you male or female?

- Male ☐
 Female ☐

How old are you?

- Under 13 ☐
 13-18 ☐
 17-25 ☐
 26-35 ☐
 36-50 ☐
 Over 50 ☐

What is your job?

How much do you earn?

- Nothing ☐
 Student grant ☐
 £5,000-£8,000 ☐
 £8,001-£10,000 ☐
 £10,001-£15,000 ☐
 Over £15,000 ☐

What county do you live in?

SECTION FIVE: PRIZE COMPETITION

My suggestion for a really good article in Express is (max 50 words)

.....

.....

.....

.....

.....

.....

Name

Address

If I win I would like a subscription to New Computer Express and:

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 Amiga Format ☐
 PC Plus ☐
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 Commodore Format ☐
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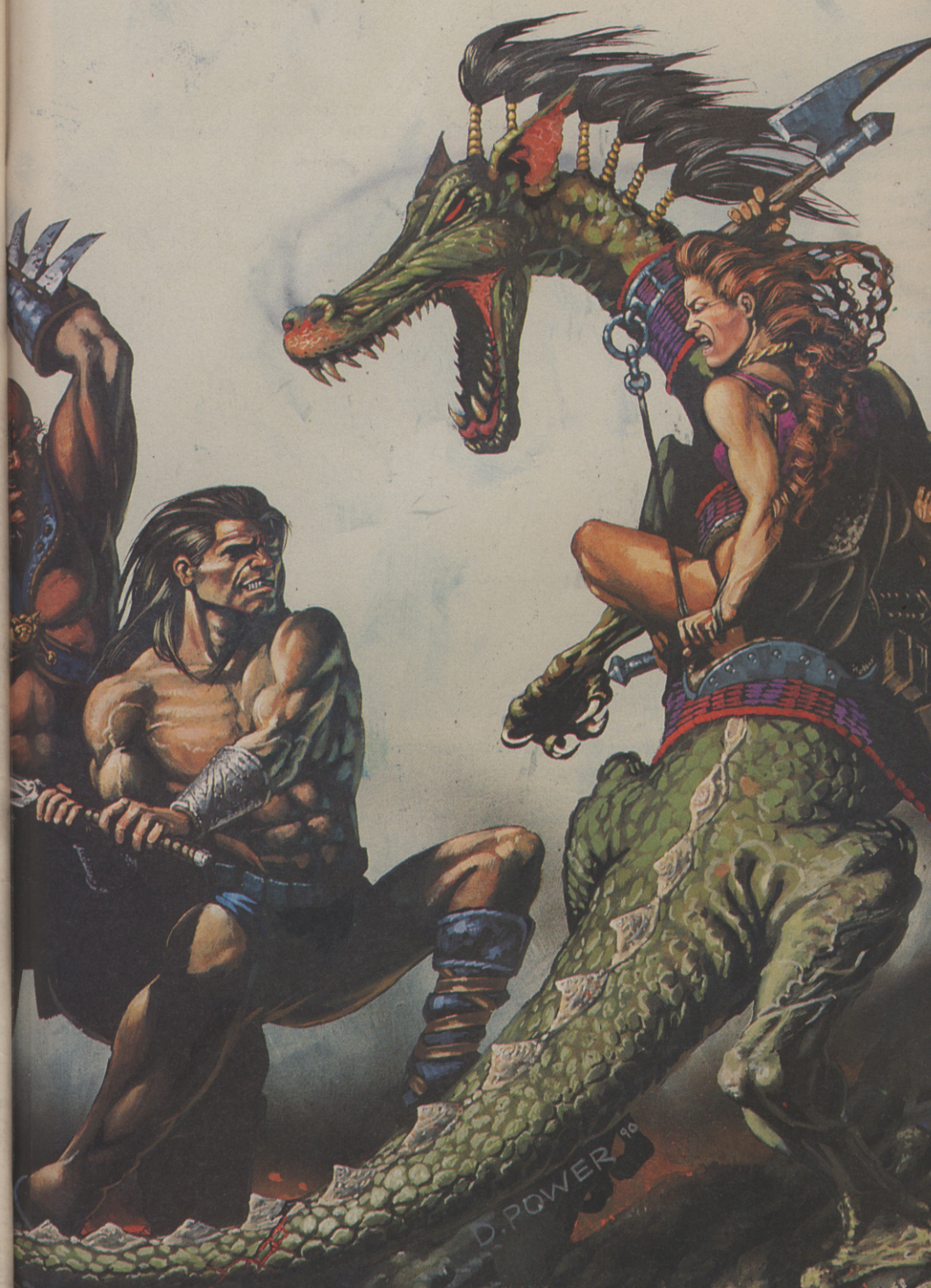
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Amiga



Atari ST



Commodore 64



Amstrad CPC



Spectrum



SEGA

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16 Portland Road London W11 4LA

Name some of the classic 8-bit games and you can be sure that most of them will at some time or another have been converted onto the 16-bit micros. ST and Amiga versions of *Elite* went down a storm, as did *Virus*.

One game which has been noticeably absent from the 16-bit arena though, has been *Ballblazer*. Activision briefly looked at writing a conversion over a year ago but in the end it was decided the game just wouldn't be any different. Rainbow Arts scooped up the licence instead and in association with Lucasfilm they've come up with their own 16-bit versions, under the new name of *Masterblazer*.

The basic style of the game could hardly be improved by much, so Rainbow Arts has concentrated their attentions on coming up with new options, some exciting visuals and even quality sound effects. The Amiga demo I saw early last week had enormous potential, boasting some brilliant sampled music and, most importantly, a hugely addictive gameplay.

It remains to be seen what the final game will look like on both the ST and Amiga but the signs are certainly promising. Start saving your pennies.

ORDERS FROM THE KREMLIN

It's definitely been a flight-sim. summer. One glance at this week's top-10 charts and you can see that *F-19* is still proudly occupying the number one slot. A little bit further down the charts lurks *F-29* from Domark and some Falcon and Bomber mission disks are even in there somewhere. In short, everybody seems to be climbing into the cockpit at the moment.

In the wake of the TV showing of *Top Gun*, now comes another, this time based on the Russian MiG-29 Fulcrum, one of the most advanced front-line attack aircraft.

The features of the MiG-29 are impressive and Domark is looking to include every aspect of the aircraft in its new game. The MiG-29 is equipped with cannon and air-to-air and air-to-ground missiles. Electronic Counter Measures (ECMs) comprise jamming equipment for upgraded missiles like SAMs and chaff and flares to confuse heat-seeking missiles. Besides out of cockpit and out of plane views which enable you to view the plane from any angle during flight, you can also watch from the camera located on a missile.

MARK
HIGHAM'S

Games Week



• Cockpit view of the chase. A US plane gets 'buzzed'. Note the green cross in the centre of the controls. When using mouse-control this indicates level flight. It works as well.

Thus, you can watch as your missile heads for its target and then detonates. The Amiga version of the game will even include sampled sound effects from real-life action.

The missions included in the game are based on real-life world scenarios and lead you across thousands of miles of Soviet air space from the chill of the Baltic to

the Russian/Chinese borders and onto the Persian Gulf. The objective of these missions is varied: you might need to photograph the US 'Boomer' nuclear submarine as it's trapped in ice; or launch an air-to-ground missile attack on an oil pipeline; or a bombing raid on the sea forces of Arzaria; or the complete destruction of the Lahal Complex to stop the construction of a nuclear

REV FOR ACTION

Last Christmas saw the biggest explosion of car racing games ever.

Getting in on the act a year late is Gremlin who made up for lost time by bringing out three new racing games, all poised for release some time before Christmas 1990.

The first of these is the *Celica Rally* simulator. A greta piece of design it features a healthy variety of race tracks which take you from parched deserts where



• Get out the antifreeze, fasten seatbelts for a bit of *Celica Rally*, complete with realistic windscreen wipers.

sandstorms frequently rage to frosty wastes where you need to watch your corners on those foot-to-the-floor turns.

This is the one of few games to include such extras as windscreen wipers and spot lamps. The wipers are essential in snow to clear your windscreen. Although the game is visually one of the best car games around, nearly completed copies of the game indicate that it's unlikely to have the essential speed and pace to really make it a hit.

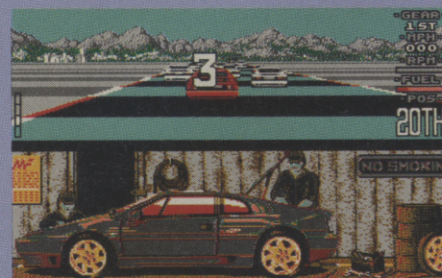
Next on the list is the *Lotus Turbo Esprit* – a two player simultaneous racing game. Although it's similar in most respects to all the other car games out there, it has the novel addition of a horizontal split screen mode. This enables two players to race against each other. It also enables each individual player to keep a track of their opponents position. A further useful addition is the inclusion of a facility for rapid acceleration, enabling you to push your foot even harder to the floor when it looks like you're about to be turned into sausage meat, enabling you to dodge the sort of trouble that tends to bring a premature halt to your race that is usually the feature in these sorts of games.

The last of the three games is *Team Suzuki*. This is a motorbike game in a similar fashion to Domark's

Hard Drivin'. 3D bricks build up the landscape and camera shots of your movements enable you to get an action replay of your last spectacular crash, as though you were going to learn your lesson and quit dangerous driving for good. Fast screen updating and some nifty 3D routines mean it could be the best of the three but at the moment, for various reasons, it's the weakest and furthest behind.

All the games should probably make it out in time for Christmas.

For further details you can contact Gremlin on 0742 753423.



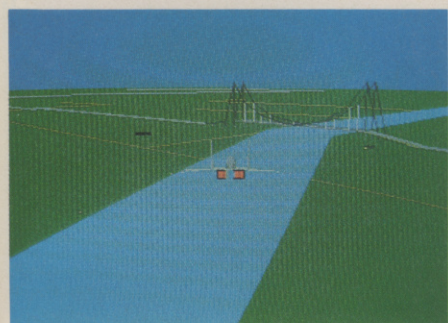
• Lotus Esprit Turbo. All primed, refuelled and ready to go.



• On the tarmac and ready to roll. If you haven't yet noticed the cold war is over and are just looking for a good scrap then you may be disappointed with Mig-29. Most of the situations involve reconnaissance and practice in 'buzzing' intruders.

reactor. Sound like pretty major stuff, eh?

MiG-29 is programmed by SIMIS – a top flight simulator design team who previously worked for British Aerospace. They're currently beaver away with the ST, Amiga and PC versions of MiG-29 in a bid to release



• Go blow up a bridge or two with Mig-29

it in time for Christmas.

Contact Domark on 081 780 2222.

THE 16-BIT TOP TEN

For the week ending October 27

1	F19 Stealth Fighter	Microprose ST/AG/PC
2	Kick Off 2	Anco ST/AG/PC
3	Shadow Of The Beast	Psygnosis ST/AG
4	Internat Soccer Challenge	Microstyle ST/AG/PC
5	Gremlins 2	Elite ST/AG
6	Cadaver	Mirrorsoft ST/AG
7	Corporation	Core Design AG
8	Days Of Thunder	Mindscape ST/AG
9	Supremacy	Virgin ST/AG
10	Captive	Mindscape ST/AG

Chart compiled by GALLUP. (c) European Leisure Software Publishers Association.



GETTYSBURG

ARC

ST & AMIGA – £24.99

PC – £34.99?

If you want seriously realistic wargaming action you'd be hard pressed to do much better than turn to one of the Turcan wargame systems. Dr. Peter Turcan has come up with the most original and realistic wargame environment ever. It's an environment which has already spawned such classics as *Borodino*, *Waterloo* and *Austerlitz*. *Armada* was the last of the series, released eight months ago. If you've explored it inside out and front to back and you're ready to move onto something new then Arc is coming to the rescue with *Gettysburg*, the latest and brightest of the Turcan series.

For those of you unfamiliar with the battle, *Gettysburg* was the site of a major conflict during the American Civil war. Before the battle, the Confederate Army, under the inspired leadership of General Lee, held the initiative in the critical Eastern theatre. The *Gettysburg* confrontation saw the swing of initiative to the north as 70,000 rebels and 90,000 Union forces came to blows.

Gettysburg was a small prosperous farming town in the American south. The Confederate brigade first passed through *Gettysburg* on June 28 when they noted that it contained a shoe factory. On June 30 a Confederate brigade was sent to retrieve some of the shoes for their men but they retreated because a large Union force was spotted heading for the town. However the Corps Commander, Ambrose Hill, didn't accept a word of the report, believing the Union forces to be miles away. When Division Commander Henry Heth asked to send a superior force to retrieve the shoes, Hill gave him permission.

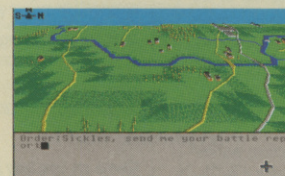


• Look at the battlefield and imagine you really are General Lee, pondering the strategies you need to defeat the Union forces.

BATTLE AWAY

This was the spark that set off the *Gettysburg* battle and it's at this point that the *Gettysburg* simulation starts.

What makes *Gettysburg* and the other Turcan wargames special is the way they place you in the seat of your chosen general. The battle arena is represented as a 3D view presented as if from the eyes of your commander. To move troops you pass your commands onto messengers who carry them to the generals who in turn pass them onto the troops. Although this means it can take a long time for your orders to end up at the front line, it also means that generals take the initiative to act under their own steam and block holes in their defence. Such an idea gives you the



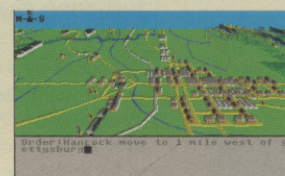
• Battle reports instruct the general to ask all his subordinates for details of men, guns, casualties etc. and then send a report to the commander-in-chief

opportunity to get involved in the action as if you were actually playing the part of the general.

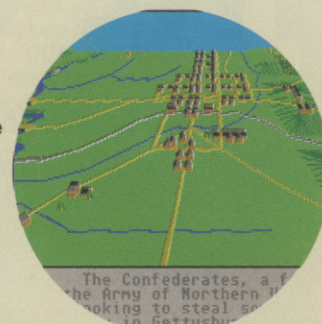
Gettysburg is played in turns with each turn occupying 30 minutes of battle time. Within this time you pass orders onto your generals and request reports, initiate battles or just keep an eye on the movement of your troops.

Visually, *Gettysburg* is a gem. Special 3D plains represent the gradients of the landscape with houses and troop camps shown as tiny square blocks. Using a LOOK command you can study the map from any direction.

The sheer detail of the game is like nothing else you've seen. Make a few moves around the battle field, despatch some orders and you can watch in horror as the holes in your strategies are brought dramatically to light. Newcomers to the game are going to find the method of passing



• Change your viewpoint on the landscape by issuing a LOOK command



commands a little troublesome to get used to. You need to issue specific instructions which must be learnt from the manual. If you're looking for realism there's nothing better than *Gettysburg*.



• Use the commands FORM A DEFENCE or ATTACK LINE to instruct your corps generals to make up a front-line. Ensure the line is complete

THAT TURCAN MAGIC

If you're used to playing the Turcan wargames then you should take note of some changes that have been made. These have been included in *Gettysburg* to make it easier to play. They include:

• A data disk option has been incorporated so that new scenarios can be loaded instead of *Gettysburg*

• An increase in the simulated playing time from 15 minutes to 30 for each move. This decreases the time it takes to complete a conflict.

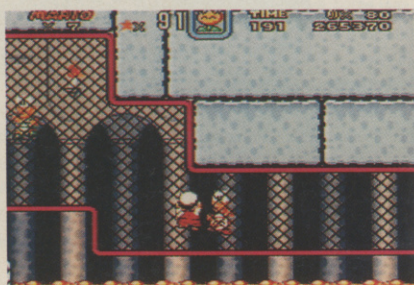
• *Gettysburg* was fought throughout the night and lasted for several days. This latest Turcan wargame provides night-time graphic displays.

• The text parser is identical to the one in the original Turcan wargame, enabling you to get to grips with the language.

• Optional sound effects for the cannon and musket fire have been added.

THE CONSOLE ZONE

NINTENDO SUPER FAMICOM



• The most celebrated Japanese hand-held console icon in living memory. Super Mario Bros 4 is the latest.

Super Mario World is one of the first games to be released on Nintendo's 16-bit console just launched in Japan. The Mario arcade platform games are the most successful range of video games in the world. Super Mario Bros 3 was the first 3-megabit cartridge on the 8-bit Nintendo Entertainment System and has sold over 7 million units since its introduction earlier this year. Super Mario World is effectively Super Mario Bros 4 and so great things are expected of it.

SEGA MASTER SYSTEM

PLAYING TIP

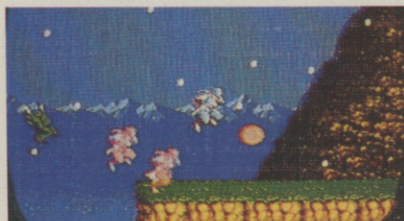
Get more Golden Axe cred by pushing [Upper Left] during the Game Over message. Warning, this can only be done once per game.

NINTENDO ENTERTAINMENT SYSTEM

Ninja Gaiden II – The Dark Sword of Chaos is the long-awaited sequel to Tecmo's martial arts game on the NES. Fans of the original will not be disappointed as Ninja Gaiden II contains more action adventure from Ninja Ryu and The Evil Ashtar. You fight your way through 20 different stages and 10 new animated 'Tecmo Theatre' cinema screens. The Dark Sword of Chaos even has over 15 different 'power-up' items including the powerful new Ghost Ninjas. "Ninja Gaiden II another sure winner game for the Nintendo Entertainment System featuring outstanding graphics, realism and control that will keep you on the edge of your seat," says Tecmo.

PLAYING TIP

Continue Rad Racer racing by simultaneously holding down [Start] and [Button A]



• A bit of Dark Swords of Chaos chaos.

Your weekly guide to console gaming with Richard Frederick.

MEET THE BEST

Want to see your name in print? We're looking for the best video game players around. Send us your top scores on the latest games released on the Megadrive, Gameboy, NES, Game Gear, Sega Master, PC Engine, Lynx and Neo-Geo to us here at: The Console Zone, New Computer Express, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW – fax 0225 446019.

GAMEBOY

Batman	424,060	Peter Worth
Super Mario Land	474,170	Jay Lee
Tetris	396,064	Peter Worth

MEGADRIVE

Eswat	277,900	Alex Taylor
Ghouls 'N' Ghosts	102,400	Alex Taylor
Golden Axe	414.5	Alex Taylor
Super Shinobi	1,968,500	Alex Taylor

NEC PC ENGINE

PLAYING TIP

Get the Hi Card worth 10,000 points in Crater Maze by digging 255 holes.

WAKE UP!

Come on you lazy lot, where are all your tasty tips and hot hints? We need your playing tips for any video games available for the Megadrive, Gameboy, Lynx, Game Gear, Sega Master, PC Engine, NES and Neo-Geo. Send everything to the Console Zone.

SEGA GAME GEAR



• Sega Game Gear at only £79, in Japan.

Columns is Sega's answer to Nintendo's Russian puzzle title bundled with the Gameboy. Similar to Tetris in many ways, Columns has the added challenge of matching colours as well as shapes in an arcade puzzle game where successful players must have lightning eye-finger co-ordination, lots of logical thought and just a hint of instantaneous creativity. It costs 2900 yen (£11). The Game Gear is Sega's new colour hand-held console which only costs £79 in Japan.

NINTENDO GAMEBOY

The cult coin-op from the early Eighties has just landed on the Gameboy courtesy of Namco. Pacman is back munching dots, power pills and even the occasional ghostie in what must be one of the best video games ever invented. Everything from the original maze game is here, including the ghost cage for Inky, Pinky, Blinky, Clyde and the rest of the crew. Who needs Tetris when you can have Pacman? It costs 3500 yen (£14).

ZONE COMMENT

What do you think of the Nintendo NES and Atari Lynx adverts on TV? What are your favourite video games? Have you found any hidden features in your latest console game? Which computer games would you like to see converted over to your console? We want your views on any subject connected with console gaming.

SEGA MEGADRIVE

Strider, the popular Capcom coin-op, has been converted over to the Sega Megadrive. You play a 21st century secret agent out on a mission to stop a mega-nasty in the Soviet Union. This scrolling arcade platform adventure is packed with features including a mechanical steel gorilla skeleton, gorgeous highly-defined graphics, stunning stereo sound and is just as good as the Golden Axe Megadrive conversion. Strider costs 7000 yen (£28).

PLAYING TIP

Play any Afterburner II level by holding down [Button A], [Button B] and [Button C] on the second title screen.



• Strider around in some amazing graphics and sound.

PLAYING TIP

Here are some Bugs Bunny's Crazy Castle pass-codes:

Stage 10:	wzfs
Stage 20:	ztpz
Stage 30:	wycz
Stage 40:	tx9w
Stage 50:	2twx
Stage 60:	ytkx
Stage 70:	she2
Stage 80:	xho2

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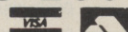
VIRUS KILLER DISK - £1:50

(state machine clearly)

(prices in brackets for 5.25" disks, state preferred)

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Buying a computer and software is becoming as big a minefield as getting a used car. There are dedicated computer dealers, high street chains, catalogues, box shifters, dedicated computer support companies and even market traders offering data processing wares.

The person or company going into computers and data processing for the first time could be forgiven for giving up and going back to the steam driven abacus. Supposed experts offer advice guaranteed to part you from your sanity as well as your disposable capital. During a week of shopping and ringing around I was given good, bad and indifferent advice. The biggest surprise was where the good and bad came from.

Specialist companies offered advice bordering on the ridiculous, a high street electronic hobbyists store gave the most useful advice and high street chains specialising in consumer goods wrote an entire new dictionary entry on confusion.

Knowledge is only one side of the equation though. I'm old fashioned enough to think that good service is an indication of the way a company is run.

With a large amount of cash to spend (or even a small one) civility isn't much to expect but many of the retailers we called on left us in no doubt that nasty technical questions were low on the scale of priorities.

STREETWISE

A whistle stop tour of the country saw us arriving unannounced in London, Birmingham, Manchester, Lancaster, Chorley and Bristol. We didn't target any areas on purpose, but asked directions to the main shopping centre or precinct. There we took pot luck.

QUESTIONS

Here are some of the questions we asked on our travels and the answers we received:

1) I want a good business system that can print letters. My secretary must be able to use it and it needs to produce good professional reports on financial data. I'll need a portable computer that I can take home too so that I can work at night and the kids can play games. What do you recommend?

STAR QUOTE

Dixons Fishergate Centre Branch, Preston, Lancs
"If you want detailed advice, you could go to a specialist. There's one on the other side of Fishergate." He winked: "When you know what you want, come back to us and you'll get it two hundred quid cheaper."

ALWAYS BE PREPARED

Before you go rushing off to invest large quantities of your (or for that matter the company's) cash, know exactly what you need and want.

It's a good idea to have all your requirements written down. If you're going to a shop or talking face to face with a supplier or rep, show them a copy of your requirements. If they know their job and their equipment, they will be able to cast a practiced eye over your list and run through your requirements with you.

Often, alternatives will be suggested. Be firm. Ask whether the alternative will do the job that you've specified. If necessary, ask for it to be explained on paper.

When you've run through your needs and are satisfied that they've been

fulfilled, check that any alternatives and extras haven't pushed you over budget. This satisfied, ask to see the machine running the programs that you will use. You may need to be firm, particularly if you're in a high street retailer on a Saturday afternoon.

If you have to deal with a company over the phone, try to get them to send written confirmation that the product that you wish to buy will do the job that you require.

The least that you should accept is a written guarantee that should the product be unsuitable for your purposes as described, you will get an immediate refund. This is your right but it's generally easier to enforce if you've got it on a document.

SEARCH FOR

A computer and software is a large investment. If you buy the wrong thing it could cost you more than just money. Keith Pomfret listened to the advice offered and offers some of his own.

LESSER QUOTES

Dixons: "If you want to play games as well as do business you should get a computer for each. A games computer won't do business jobs properly and you can't play games on an Amstrad PC."

Dixons: "Wait here, someone will see you when they can." (I left the shop in disgust after twenty minutes)

Dixons: "That's a difficult one. I'll have to ask." Darren (his badge told me that) disappeared to the main counter and came back to say: "It's a busy time now. Someone would have more time to speak to you in the week."

Boots: "You'd be better off contacting our head office in Nottingham. Some of our shops probably know more about computers than we do. They could advise you."

Boots: "We used to sell them, but we're not a specialist. Try a proper computer shop."

Rumbelows: "We do the Amiga and the ST which are nearly the same, but both can do business as well as graphics and the kids can play games. There's a

portable Amiga or Atari, I'm not sure which, but you can't get it anyway."

Tandy: "We do business computers which are PCs. There are home computers too, but they're not compatible. Some of our PCs will run games which are good but there aren't as many PC games as say for the C64. If you want more information, I'd be glad to phone someone and get your questions answered"

2) What's the best games computer that does business as well?

Dixons: "Definitely the PC"

Rumbelows: "Look at it another way. Games computers can do business"

Tandy: "Any PC"

3) Do I need a daisy wheel printer for bit image printing?

Comet: "Definitely"

Dixons: "No, a daisy wheel is a typewriter without the keys and can't do graphics"

WHERE FROM

You've decided what you want where can you get it?

Dixons, Tandy and Comet local number in yellow pages

Velstar 0480 811994

Kamco 081-963 1031

Dan Technology 081-961 6959

DS Computers 071-281 5096

Mesh 081-208 2028

Silica Systems 081-308 0888

TALES OF WOE

The story doesn't stop with the sales receipt. As you walk away from the vendor, lighter in heart and wallet, your problems could start. Most computer sellers will honour the warranty without threats of legal action and the reliability of today's electronic manufacturing processes mean that most problems are simple to fix.

If you're one of the few unlucky ones who've had a bad deal and been left high and dry when you ran into problems, let us know. We'll take the ten worst cases and see what can be learned (and what can be done) about them.

Send your sorry stories to *Express* at the usual address: 30, Monmouth Street, Bath, Avon, BA1 2BW or fax us the details on 0225 446019. Mark the fax for the attention of Tech Editor, *Express*.



Tandy: "We don't have them so we're not sure, but we can find out."

4) What sort of computer should I buy for DTP? I want to produce an in-house magazine. It must be simple enough for a couple of my staff to use without a huge amount of training and must produce a disk that I can send to any printer.

Dixons: "PCs can do it, but there's a machine called a Macintosh that's very rare and all the papers use them. It costs thousands though and we don't stock them. You can have a PC but we've no publishing software to go with it."

Tandy: "That's outside our area. You'd need an Apple specialist for that. I'll look the phone number up if you wish."

Comet: "The Atari ST should fit the bill."

Rumbelows: "What's DTP?"

5) I need to word process on the train. What's the cheapest option?

Dixons: "A PC"

Rumbelows: "We don't do anything like that, but you could take an Atari Lynx and play games on the train."

Tandy: "We do the 102 which is a portable that runs on batteries. If you want a dedicated word processor, we're expecting the WP-2 in any day now."

6) "Which size disk is better?"

Comet: "That depends what computer you're using."

Dixons: "Size doesn't matter. As long as you use decent brand name or guaranteed disks."

Tandy: "You're limited by the size of disks that your computer can handle. You can't put a big disk in a little hole."

7) If I buy an Atari can I read disks from it in a PC?

No one knew. Comet won the prize for the best answer with "If you buy an Amiga it can read the PC disk. The ST can read the Atari disk and that solves the problem."

8) I want a cheap and cheerful computer for the kids for Christmas.

Dixons: "C64".

Comet: "Spectrum or Sega console".

Tandy: "C64".

Rumbelows: "Spectrum or any hand held console".

The advice I received went from helpful and authoritative to downright daft. Tandy scored highest because its

staff seem to operate a policy where they don't attempt to answer a question if they don't know the answer. Instead they offer to get the information from an informed source. The big high street consumer chains are up against the odds with the amount of kit that they sell and the fact that they have to employ large quantities of part time staff.

DRING DRING

The phone is a strange place to do business, but if a company offering a bargain is a zillion miles away, it's often the only way. Have your checklist with you by the phone and get the name of the person that you are connected to. If someone refuses to identify themselves, ask for someone who can (sometimes companies instruct their staff to withhold names because of nuisance calls, but a supervisor will generally give a name.)

Ask your questions calmly and insist firmly on an answer that you can understand for each. Don't make a decision during an initial conversation. Many companies offer on line credit card ordering and it only takes a few seconds to give the magic number. All of the companies that we rang offered accurate advice (based of course on what was currently in stock.)

CHECK LIST - WHAT YOU SHOULD INCLUDE

Machine Specification - here's where you put what the machine must do in order to fulfill your requirements. It may be that you need a powerful number cruncher to work out the figures of a three dimensional spreadsheet. Your needs might be those of a simple games player who wants colour, action and sound. If you type a lot of reports, you might get away with a dedicated word processor. This section should have in clear tabulated form, the minimum system requirements.

Desirable - when you've decided what you must have, there will probably be things which would be nice to have. These should be features that could enhance your use of the computer/printer etc, but on their own are not important enough to warrant extra cost. An example might be an office machine (PC or suchlike.) A desirable feature might be the desire to drive home MIDI keyboards for a hobby. This in itself wouldn't be important enough to re-specify the requirements.

If there were a choice of two machines though, the one which was lighter and easier to move and had

sufficient spare slots for a MIDI card in a serial port free for an interface would win. Both machines might be approximately the same price, but the appropriate features would swing the decision toward the machine perceived as more desirable.

Price - set your budget and remember to include things like VAT in your calculations. Ask if everything is included in the quoted price. Some manufacturers and suppliers quote for system unit only. The price can nearly double when you learn that 'extras' like the keyboard, monitor and disk drives aren't included.

Compatibility - it may be that you need to work with existing software packages. Insist that you see the software running on the machine before you buy it. If that isn't possible, get a guarantee of immediate refund if it won't work.

Soft stuff - whatever machine you buy, you'll need software. If software is to be supplied by the vendor, insist on some time with a member of staff who can show you how it works. If there isn't a member of staff familiar

with the product you're buying, that should ring warning bells. Ask if any training can be provided. A good computer supplier will be able to provide training or suggest a good training scheme.

Small can be beautiful - small specialist computer shops can be good in terms of machine and software knowledge. The chap in Dixons who suggested going to a specialist for knowledge and then returning for a bargain summed it up. There's not enough space on the page to mention the hundreds of small computer retailers in the UK, but most that we tried were able to offer a better, more knowledgeable service that cost a little more.

Conclusion - it's your own responsibility to yourself to make sure that you're well organised and have your requirements specified before you start. If you follow the guidelines in this article you stand a chance of surviving the minefields in the computer market.

Stay within the parameters you define and don't allow impulse or sales pressure to rule.

The three dominant flavours of the Unix operating system for microcomputers are XENIX, AT&T's System 5 and BSD 4.3. They have a common ancestor in AT&T's Version 7 and they share a wealth of features, making the 20-year-old Unix system into a general-purpose operating system for the Nineties. But they cost a lot – spending £1,000 on the operating system is not considered outrageous.

In response to both the high prices and the creeping 'featuritis' of modern Unix (which, for Keepers of the True Faith, rather defeats the object), two 'clones' now offer most Unix features at a far lower price.

In the Good Old Days, Unix was distributed by AT&T at a nominal charge (primarily to universities), and the source code for the operating system was included. This, plus its portability, made Unix an excellent vehicle for teaching the principles of operating system design to Computer Science students. But now that Unix has become a commercial system and the source code is no longer shipped, universities have lost a valuable tool.

MINIX

Andrew Tannenbaum, a Dutch academic, has addressed that market with MINIX, a Unix-like operating system, written from scratch to avoid AT&T's copyright. Now on version 1.5, MINIX offers the functionality of Unix V7, plus Tannenbaum's source code (125,000 lines of C), at a cost of £125 plus VAT – with versions suitable for the PC, ST, Amiga and Macintosh.

Apart from the multi-tasking Unix-style kernel, MINIX includes a copy of the Unix Bourne Shell (the system's command interpreter), a C compiler compatible with the standards laid down by Kernighan and Ritchie in *The C Programming Language*, three text editors (clones of Unix's vi, ed and emacs) and several hundred utilities, together with a bunch of library procedures for C programmers.

We tested the PC version, which supports up to three concurrent users, making it a true clone of Unix. The PC MINIX can also exploit the protected mode of most 80286- and 80386-based ATs, allowing you to address up to 16 Mb of RAM.

Installation is fairly straightforward, as long as you are happy to mess around with the partitions on your hard disk. Although MINIX can coexist with DOS, it is a genuine operating system and as such requires its own hard disk partition from which to boot – fortunately for DOS users, this needn't be the first partition, so DOS can stay there. 13 disks are included in the package, including three different boot disks – MINIX talks to the hardware at a very low level and thus has different disks for different configurations. The documentation is very helpful and takes you through everything step by step (although it's not really for computing beginners).

Once inside MINIX, you might as well be in Unix. The Shell is functionally identical to the Bourne Shell, and you type away with just about all the standard commands. It also has a Unix-like hierarchical files structure and Unix-like directory names.

MINIX's strength, however, comes not from using it but from being able to change it. If you want to add a feature to the operating system (or remove one from it) you simply dive into the source code, write a few lines of C and bingo – you have a different operating system.

For someone who wants to find out how a computer's hardware interfaces with its application software,



Unix may sound pretty interesting but it costs a fortune. Mike Hardaker completes last week's look at the Unix system with two cheaper clones.

MINIX provides an excellent environment. And if you're interested in C programming, 125,000 lines of (almost) bug-free code at your fingertips provides many insights into sophisticated program writing. If this sort of thing appeals to you, you can support MINIX with Tannenbaum's book *Operating Systems: Design and Implementation*, which includes the source listings for an earlier version of the operating system.

For formal or casual students of Computer Science, MINIX will be utterly fascinating. The wide variety of machines it supports makes it handy for groups with non-compatible systems who would like to study together. UK support is available from The MINIX Centre (see below) and it can provide updates, sell you support, and has a number of programs which have been ported over from conventional Unix (primarily for the ST version, although others are coming).

COHERENT

Mark Williams Company's Coherent has an even longer history than MINIX. First produced in 1982 for the DEC PDP minicomputers (Unix's traditional home), it has now been recoded and relaunched for the PC.

Currently available directly from the States, Coherent runs on IBM-compatible PCs with 80286 processors or better and costs \$99.95, to which UK purchasers will have to add about \$35 carriage. HM Customs and Excise will then tap you for VAT when the program arrives in this country, so the final bill will be somewhere around £75-80 at current exchange rates.

You get more for your money than you do with MINIX – but no source code. The documentation is a single beefy manual with over 1,000 pages (MINIX has 680 including some 400 pages of source-code). This comes close to a full Unix manual, together with chapters on the C programming language, the two editors (ed and microEMACS), and the major utilities supplied.

The manual is also provided in an on-line form, and the Unix command 'man' followed by a command or function name will give you all the contents of the manual's relevant pages. 'Man' costs £80, including both hard copy and on-line pages.

Installing Coherent is less frightening than loading up MINIX. The American product is less fussy about its

underlying hardware and will generally accept a disk partition previously created under DOS. A handy dual-boot utility is also provided, a complete new piece of bootstrap code which allows you to decide which partition you want to make active when you turn on – anyone who's ever trashed a PC's hard disk through thoughtless use of FDISK will appreciate this. Coherent comes on only four floppies so it's a more straightforward matter (once again, gratifyingly well documented).

Coherent 'feels' more resilient than MINIX; more of a genuine operating system for developing and running applications. There are more utilities than MINIX, including UUCP (Unix to Unix Copy), yacc (Yet Another Compiler Compiler), a version of the awk language and lex, the textual analyser.

In essence, Coherent is a product for people interested in using Unix and for someone who wants to get to grips with the environment before moving out into Unix systems administration it is ideal. It also provides a good, low-cost environment for writing C programs which will later be ported to 'real' Unix.

A number of US software houses are taking Coherent very seriously, and some applications are already available – including /rdb, a relational database system ported across from Unix (and available on everything from DOS to the Cray supercomputer).

THE FINAL BILL

Although both products come with hefty documentation (particularly Coherent) it is not really general enough for the Unix beginner. MINIX's manual is skimpy in many areas – the C compiler is not documented at all, the user is simply pointed towards Kernighan and Ritchie.

If you are getting either of these products it will pay to get a decent introductory guide to Unix. For instance, *Using Unix by Example* (Poole and Poole) or *A Practical Guide to the Unix Operating System* (Mark G Sobel).

Both products provide a low-cost entry to the operating system many believe will take over the world. Coherent is better for PC users unless you want to get down to the lowest levels (where MINIX is unbeatable). If you run an ST, Amiga or Mac, MINIX is the only choice – but not a bad one. ■

PRICE CHECK

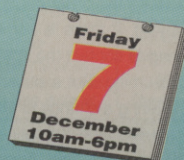
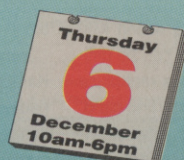
MINIX	Coherent
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Centre 0953 89345	010 1708 291 6700.



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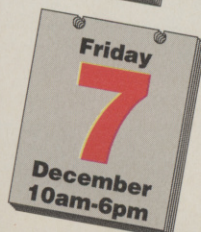
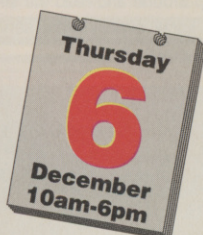
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BUYING A PC

VALUE FOR MONEY

Choosing a PC is much the same as deciding what brand of soap-powder you should buy. Do you splash out on the expensive well-known brand that cleans whiter than white, or save money on the cheapo variety you've never heard of? It might be as good – or it might leave coffee stains all over your favourite shirt!

The main difference with a PC, of course, is the money involved. For even a small business the initial outlay for a PC system can be considerable so a cheap system must seem an attractive proposition, especially as many of them boast they can match the specifications of the more expensive brand name systems.

Leading PC suppliers, such as Amstrad, IBM and Compaq, argue that such thinking is false economy. Like any other product, if you buy a brand name you are also buying peace of mind.

Hugh Jenkins at Compaq, echoes the view of all the major companies: "Other competitors compete on price. We compete on quality. Our first and foremost aim is to build a reliable, high-performance product. We find that with A N Other's PC, problems like having the machines down and maintenance costs all add up."

Amstrad's Nick Hewer agrees: "I think you're buying security, knowing that an Amstrad product is sold in tens of thousands and is tried and tested technology."

The major PC companies offer extensive customer services and support, by selling their products through authorised dealers who are usually specially trained to offer customers expert advice on choosing a PC.

Hewer believes this is an important part of their service: "Computer retailers who are used to selling Amstrads will be familiar with those machines and able to advise the customer. If you bought a honky tonk computer it is unlikely that that company will have sufficient experience with that machine to know its capabilities."

On all PCs there is a statutory year's warranty, the actual terms of which differ with each company. Amstrad's 24-hour, on-site maintenance is included in the price, while with IBM the customer has to return a defective machine to the dealer for repairs. Extended maintenance contracts can usually be worked out through the dealers, although at a further cost. In other words, customers who buy brand name PCs know there should be no hassles about prompt, efficient repairs.

So it seems that small businesses are stuck with a choice between the expensive but reliable PCs on one side and affordable but risky machines on the other.

But Zygi Kamasa, managing director of Kamco Computers which claims to sell some of the cheapest PCs around, typifies the reaction of smaller companies which offer a middle ground: "When people see cheap prices they tend to think there's no service involved. They are pleasantly surprised when we do give them more. There's a gap there for people who want some service, but don't want to pay too much for it."

A comparison of prices for a standard specification PC illustrates just how much more competitive these companies can be. A PC286 with mono VGA from Amstrad will cost around £1,000. Velstar

PAYING FOR THE NAME

The big name computer suppliers charge the full rate for their products but promise a better after-sales service in return. The smaller companies certainly offer cost savings, but can they follow through?

(Cambridgeshire) offers a comparable machine for £969; Kamco (London) £675; DS Computers (London) £622; Irlandex (Belfast) £500 – if bought from a dealer. Savings that make customers suspicious about quality.

But while not claiming to match the name brands on service, many of these smaller companies feel they can offer reliable PCs and enough support service to make their products worthwhile at a fraction of the cost.

SAME COMPONENTS

Velstar claims to use the same components as the major labels and offers a warranty with, at an extra charge, on-site maintenance. DS Computers admits its major attraction for customers is price, but insists its machines are assembled from the same parts as IBM's and also offers technical support by phone. Irlandex reckons it, "offers higher specifications at a lower cost."

A problem with mail order shopping is not seeing what you are buying. If there is something wrong with the machine, trying to contact the company can be difficult and time consuming. But a showroom is real place with real faces, offering a chance to view PCs first hand. Vartan, DS Computers and Kamco, which offer showrooms, all said that they ask questions about their customers' requirements at the showroom stage.

Irlandex has no showrooms itself but sells a large percentage of its PCs through dealers. Though their PCs are cheaper by mail order (about £200 less than the dealer prices), boss Greg O'Dearullain recommends that customers buy from shops: "If you are computer illiterate or not sure how to set up your computer, then it's worth paying the extra money to buy from a shop where they can help you."

Under EC law the statutory first year's warranty applies equally to PCs bought from these companies –

so no qualms about taking back defective machines. But there are limitations on the services these smaller companies can offer. They may only have a few showrooms and therefore can only offer their services within a certain area. "If we cannot support someone, we tell them straight away," was the Vartan view. DS Computers agreed it would be stupid for them to supply to someone in Scotland from their London base.

But all the companies agree the real reason they can offer such low prices is because of low overheads and fast turnaround. With the major brands you are "paying for the name," as Anne Jones at DS argued, and Kamco's Zygi Kamasa goes further: "I think the prices the brand names charge is ridiculous. I know how much they're paying for their parts from the Far East."

Still sceptical? Kamasa points out that Dell was started by Michael Dell putting together PCs in his room at the age of 19. "He was in the right place at the right time – and he was doing what we are doing now."

For all the fighting talk of companies such as Kamasa's, the brand names do not seem unduly worried. Kevin Perlmutter of IBM is typical: "We offer all the things that make IBM a brand leader and the smaller companies offer... what they offer. It's all down to different combinations of reliability, service and cost. At the end of the day the customer decides what combination he really wants. We have confidence in the combination we are offering."

One thing all the companies agree upon, large or small, is that anyone requiring a PC should know exactly what they want, not only in terms of the capabilities of the machine but also how much service they think they might need. Shop around and read the small print carefully. Then you'll know exactly what service you are entitled to if it breaks down. ■



• The Amstrad 3386SX, how much cheaper can you get it?

We took one of the latest machines from Amstrad and asked one of the smaller companies to come up with their closest equivalent. Here is how DS Computers was rated in terms of both price and services

Amstrad 3386SX
Running at 20MHz
1Mb on board memory, 40Mb hard drive
VGA graphics, 2 floppy drives
MS-DOS 3.3 included.
Price: £1,838.85 including VAT
One year's warranty including on-site maintenance, with optional renewal after a year.
Technical support hotline.
Chain of showrooms country wide.

DS Computers
Super VGA single floppy system: £1,244
Hard disk upgrade: £175
Extra 1.4 floppy disk drive: £49
DOS: £49
Total: £1,629.55 including VAT
One year's warranty - not on site, computer must be returned to showroom
Technical support on phone.
Single showroom in London.

★ POCKET SIZED ★ PC-COMPATIBLE ★ PERSONAL ORGANISER ★



ATARI Portfolio

THE PC IN YOUR POCKET

The new Portfolio from Atari is the world's first pocket-sized electronic organiser that is also a powerful PC compatible computer, with a full QWERTY keyboard and scrolling 80x25 character display.

Portfolio includes everything you would expect from an electronic organiser - an address and telephone book, time manager, diary and sophisticated calculator.

Portfolio also includes several functions that you would not expect - a spreadsheet for your personal budget and expense records, as well as a text processor for typing memos and letters.

And, because Atari's Portfolio is PC compatible, it can communicate with your desktop PC at home, or in the office. You can transfer files from one to the other, to enable you to update your reports and figures with the Portfolio while you are on the move.

FOR ONLY **£199** INC VAT

SPECIFICATION

- ★ **Processor:** Intel 80C88 at 4.9152Mhz.
- ★ **Operating System:** Compatible with MS-DOS 2.11.
- ★ **Internal ROM:** 256K containing BIOS, operating system and applications suite.
- ★ **RAM:** 128K with an internal RAM disk, configurable from 8K. Externally expandable to 640K RAM.
- ★ **Keyboard:** 63 keys, QWERTY, IBM PC BIOS compatible. Buried numeric pad and function keys. Optional key click.
- ★ **Character Set:** Extended IBM ASCII (255 characters).
- ★ **Mass storage:** credit card sized memory cards (32K or 64K or 128K RAM).
- ★ **Display:** Graphics LCD, supertwist technology, MDA compatible, 40 columns x 8 lines, 240 x 64 pixels (with the option to software a full 80 x 25 character display). Keyboard controlled contrast.
- ★ **Peripherals:** 60 pin expansion BUS to take serial and parallel ports and memory expansion units.
- ★ **Size:** 8" x 4" x 1" (200mm x 105mm x 29mm).
- ★ **Weight:** 495 grammes (with batteries).
- ★ **Applications:** calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

5 BUILT-IN APPLICATIONS TO GET YOU ORGANISED!

To get you started, Portfolio comes with a suite of five useful functions built-in, all accessible from a simple menu display.

TIME MANAGER

More than just an electronic diary, the Portfolio Time Manager enables you to plan your appointments via a comprehensive calendar and diary. It can even be programmed to sound an audible alarm at specific times to remind you of important appointments.

CALCULATOR

Your Portfolio will be invaluable in the office or at home as a powerful pocket calculator. It has a full range of functions, including factorial,

power and root calculations, all with multi display formats and memories.

ADDRESS BOOK & DIALLER

Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, at the touch of a button, you can retrieve any one of them, or search for a specific grouping, such as "all Italian restaurants". And, when you are ready to book your table, hold your Portfolio to your telephone mouthpiece and use its special built-in tone dialler to dial the number for you.

TEXT PROCESSOR

The Portfolio's built-in text processor program

includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

SPREADSHEET

For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.

COMING SOON!

In addition to the excellent software built-in to the Portfolio Free of Charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and serial/centronics interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built in mini modem, Apple Macintosh interface, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.



MEMORY CARDS

Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.



POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A "battery-low" warning and memory back-up ensure that information is not lost when the batteries are changed.



INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and supports a growing range of peripherals via a built-in 60 pin bus connector. Peripherals available include serial and parallel interfaces and memory expanders (to 640K). You can also add a card drive to your desktop PC, to enable it to read/write to Portfolio's cards.

SILICA SYSTEMS OFFER YOU

FREE OVERNIGHT COURIER DELIVERY: On all hardware orders shipped in the UK.
TECHNICAL SUPPORT HELPLINE: Team of Atari technical experts at your service.
PRICE MATCH: We normally match competitors on a "Same product - Same price" basis.
ESTABLISHED 12 YEARS: Proven track record in professional computer sales.
£13M TURNOVER (with 60 staff): Solid and reliable with maintained growth.
BUSINESS/EDUCATION/GOVERNMENT: Volume discounts available for large orders.
SHOWROOMS: Demonstration and training facilities at our London & Sidcup branches.
THE FULL STOCK RANGE: All of your Atari PC requirements from one supplier.
FREE CATALOGUES: Will be mailed to you with offers and software/peripheral details.
PAYMENT: By cash, cheque and all major credit cards.
CREDIT PAYMENT TERMS: Silica are licensed credit brokers - details on request.

Before you decide when to buy your new Atari Portfolio, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your Portfolio, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new Portfolio products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Shop, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature and begin to experience the "Silica Systems Service".

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 Opening Hours: Mon-Sat 9.30am-6.00pm Late Night: Thursday until 8pm Fax No: 071-323 4737
SIDCUP SHOP: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX Tel: 081-302 8811
 Opening Hours: Mon-Sat 9.00am-5.30pm Late Night: Friday until 7pm Fax No: 081-309 0017
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PLEASE SEND INFORMATION ON PORTFOLIO

Mr/Mrs/Ms: Initials: Surname:

Address:

Postcode:

Tel (Home): Tel (Work):

Company Name:

Which computer(s), if any, do you own?

The process of design is typically a cycle of analysis (finding the features of the problem that will dictate the form of the solution), synthesis (writing the program) and evaluation and modification (testing and improving the program).

To fully analyse any but the simplest problem, it is necessary to classify all the elements of the problem and build up models of how they work. To build a database program, you must find out what kinds of information will be held in the database and how they will be accessed, to what use the data will be put and in what form it will be required; to write any sort of simulation, you need to be able to predict and explain the behaviour of every element of the situation. Even if it is not obvious that all this information will be needed in the final program, it will be relevant to the information that is used – and the scope of a program is liable to expand massively between the first plan and the final system.

Even if you do not intend to write the program using an object-oriented language such as Smalltalk or C++, the techniques of object-oriented programming can be used to analyse the problem and break the situation down (into necessary information, agents that act upon that information, the actions they perform on the information and the results of those actions) simply to be sure that you will understand the problem fully. No matter how elegant or efficient the code, it is of little use if it solves the wrong problem.

In some situations (particularly if you are learning to program or are intending to expand an existing system), you will be presented with the results of such analysis, together with the desired results, but if this specification is not sufficiently detailed, you may need to do some further investigation yourself. Perhaps the best method is to take a sample piece of data and follow it through whatever will happen to it in the system; the results of this can also be used as the basis for early attempts at coding if no existing algorithm is available to be implemented.

Once you have a suitable specification detailing the data that will be input and the results required as output, the next stage is to design and write a program that will process that input data effectively. Before discussing the best way to start writing a program, it is worth considering exactly what a program is ...

WHAT IS A PROGRAM?

At its most basic, a program is a list of instructions for the machine, telling it what operations to apply to the data. In order to understand the behaviour of a computer program, it is important to realise that this is a static representation of a dynamic process. A listing stands in much the same relationship to an operational program as a map does to an area of ground; the map describes and represents the ground, but it is very obviously not the same thing.

Similarly a program is the description of a mechanism that has to be interpreted and implemented by the machine, and by the reader if he or she hopes to understand it (this is particularly true in the case of declarative programming, which we will consider in a later issue). Seeing a program as a process rather than a sequence of text will help greatly.

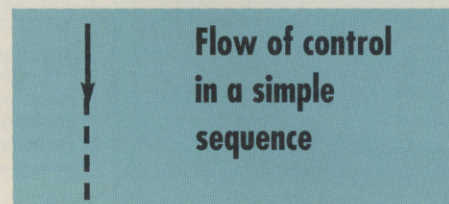
However, whatever the actual steps that will make up this mechanism, they must inevitably form part of one of the following processes.

SEQUENCES AND SELECTION

The simplest form that a list of instructions can take is that of an actual list – a sequence of commands. Many familiar instructions come in lists, for example recipes or instructions for installing home appliances. However, there are not many problems that can be solved by simple linear sequences of commands and most programs will include loops and selections.

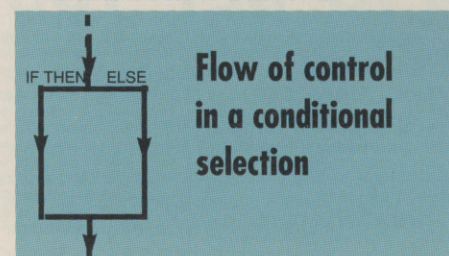
PROGRAM DESIGN

In the second of her series on programming Mary Branscombe explains how to analyse your problem before creating a program to solve it.

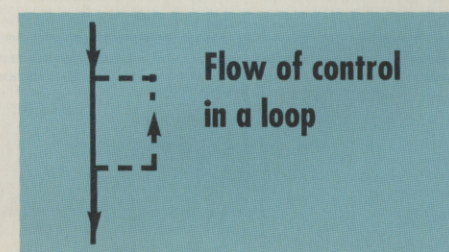


Selection is simply the ability to vary the instructions to be followed according to the current situation; such constructions are often known as conditional selections, for example

```
IF the host machine is a PC
THEN use a PC compatible format for the data
ELSE ask the user for a data format.
```



A loop is the ability to repeat a selection of the instructions as long as a condition holds or until a condition is satisfied; to write a loop it is important to be clear on what it is you want to be repeated, and under what conditions. This will help you to avoid common errors, such as leaving statements outside the loop that need to be repeated or forgetting to terminate the loop. Such mistakes are due to a failure to perceive the flow of data or control in the program. The three basic techniques are shown as flow of control graphs in figures one, two and three.



Despite the simplicity of these techniques, there are many variations, from GOTOs and IF THEN statements to WHILE and UNTIL loops. Whether you are writing your own code or reading an existing program, you will find it easier to understand the desired behaviour of a loop or conditional selection if you visualise it as a simple variation on the illustrated control flows.

Having analysed the problem and grasped the notion of the program as a process or mechanism, you

can make a start on the program. Writing a program involves reducing the complex, inter-related situation to a linear flow of actions that simulate these interactions.

Analysing the problem will show you how the program should be organised, but you will need a definite plan. It is possible to specify the program in terms of mathematics and formal logic and to then verify this specification vigorously. This is an important process for safety-critical applications but for many programs it is possible to develop a working model of the situation informally in a helpful environment, perhaps simulating certain obvious areas to allow evaluation more quickly.

If a program is to access an existing database and present the contents in a complex Graphical User Interface (GUI), then presenting a comprehensive version of the entire user interface to the user or client is more urgent than perfecting the routines for translating data, as this will allow the user to begin commenting on the part of the program that they can assess. If the overall structure and specification of the program need to be changed, it is important to know this as soon as possible. Once this prototype has been approved it can be implemented in the target environment, which may be quite different from that in which it was developed.

TOP-DOWN PROTOTYPING

This process is top-down prototyping or stepwise refinement. At the simplest level, top-down design seems to be no more than writing down the most general plan of the program and then expanding each step in turn by specifying it generally and then filling in the details successively.

This systematic approach is useful, if only to make programmers check that they know what they need to do in order to write the full working code; it is a process of stating what you know and expanding it. At a more complex level the process can be used for the prototyping already described.

A prototype can also be developed from the bottom up. If you wish to implement different areas of the program successively, test the performance of the algorithms in each module of the code and combine the various elements into a full program later. This approach can be used where the overall structure of the program is not known, or where further features are to be added to a complicated existing program. The performance of the individual features can be checked without the need to approach them through the existing program and interface.

It will still be important to develop a fully functional interface for the new features – preferably a simple simulation of that in use on the existing system – as this makes full testing much easier and quicker, especially if any debugging is required.

THE ATARI ABC

Now, there's a PC-AT compatible that not only solves problems like other AT compatibles, it also solves the one problem that its predecessors have created ... affordability.

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AN ARCHIMEDES LEARNING CURVE

Three runners-up prizes of free tickets to the computer show



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- 1) If you were unlucky you'd get A Corn on your
 - A) Head
 - B) Foot
 - C) Ear
- 2) A Corncrake is a
 - A) Car
 - B) Lizard
 - C) Bird
- 3) Acorns are the fruit of which tree
 - A) Maple
 - B) Acorn
 - C) Oak
- 4) A Cornet with an icecream and a flake is a
 - A) 88
 - B) 66
 - C) 99
- 5) Who was leaning on a lamppost at A Corner of a street?
 - A) Bert Kampfert
 - B) Jello Biafra
 - C) George Formbey

Once you've got the answers to this week's and last week's questions all you have to do is fill in the coupon on the left and send it in. Remember there are also three runners-up prizes.

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ANSWERS:

- | | | | | |
|----|----|----|----|-----|
| 1) | 2) | 3) | 4) | 5) |
| 6) | 7) | 8) | 9) | 10) |

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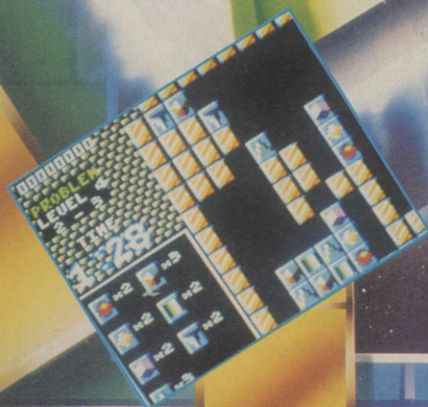
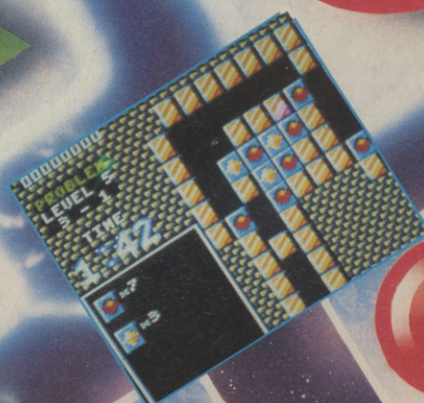
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